

# **EXHIBIT C**

<p>1 UNITED STATES DISTRICT COURT DISTRICT OF NEW JERSEY</p> <p>2 -----x IN RE: VALSARTAN, LOSARTAN, AND : MDL NO. 2875</p> <p>3 IRBESARTAN PRODUCTS LIABILITY : LITIGATION, : 4 : THIS DOCUMENT RELATES TO: : 5 Duffy, et al. v. Solco Healthcare : U.S., L.L.C., et al., : 6 Case No. 1:18-cv-15076-RBK-JS : -----x</p> <p>7</p> <p>8</p> <p>9 VOLUME II ***RESTRICTED CONFIDENTIAL***</p> <p>10</p> <p>11 Veritext Virtual Zoom Videotaped deposition of MAHYAR ETMINAN, taken on Wednesday, 14 August 25, 2021, held in Vancouver, City of British Columbia, Canada, commencing at 8:32 a.m., before Jamie I. Moskowitz, a Certified Court Reporter and Certified Livenote Reporter.</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p>Page 1</p> <p>1 APPEARANCES: (All appearances via Zoom)</p> <p>2</p> <p>3 GREENBERG TRAURIG BY: STEPHEN T. FOWLER, ESQUIRE 4 2101 L Street, N.W. - Suite 1000 Washington, DC 20037 5 202.331.3100 fowlerst@gtlaw.com 6 Counsel for Defendant Teva Pharmaceuticals Industries Ltd.</p> <p>7</p> <p>8 GREENBERG TRAURIG BY: STEVEN M. HARKINS, ESQUIRE 9 Terminus 200 3333 Piedmont Road NE - Suite 2500 10 Atlanta, Georgia 30305 678.553.2100 11 harkins@gtlaw.com Counsel for Defendant Teva Pharmaceuticals 12 Industries Ltd.</p> <p>13</p> <p>14 HILL WALLACK LLP BY: NAKUL Y. SHAH, ESQUIRE 21 Roszel Road 15 Princeton, New Jersey 08540 609.924.0808 16 nshah@hillwallack.com Counsel for the Defendants Hetero Drugs and Hetero Labs</p> <p>17</p> <p>18 PIETRAGALLO GORDON ALFANO BOSICK &amp; RASPANTI, LLP BY: JASON M. REEFER, ESQUIRE BY: CLEM C. TRISCHLER, ESQUIRE 20 One Oxford Centre 301 Grant Street -- Floor 38 21 Pittsburgh, Pennsylvania 15219 412.263.2000 22 jmr@pietragallo.com Counsel for the Defendant Mylan</p> <p>23</p> <p>24</p> <p>25</p>
<p>1 APPEARANCES: (All appearances via Zoom)</p> <p>2</p> <p>3 LEVIN PAPANTONIO RAFFERTY LAW FIRM BY: DANIEL A. NIGH, ESQUIRE 4 BY: MADELINE E. PENDLEY, ESQUIRE BY: SARA PAPANTONIO, ESQUIRE 5 BY: LAUREN MASSEY, ESQUIRE 315 South Baylen Street 6 Pensacola, Florida 32502 850.435.7013 7 dnigh@levinlaw.com Counsel for the Plaintiffs</p> <p>8</p> <p>9 MARTIN, HARDING &amp; MAZZOTTI, LLP BY: ROSEMARIE R. BOGDEN, ESQUIRE 10 111 Washington Avenue - Suite 750 Albany, New York 12211 11 518.724.2207 roosemarie.bogden@1800law1010.com 12 Counsel for the Plaintiffs</p> <p>13</p> <p>DUANE MORRIS 14 BY: PATRICK C. GALLAGHER, ESQUIRE BY: LAUREN A. APPEL, ESQUIRE 15 BY: FREDERICK R. BALL, ESQUIRE 1875 NW Corporate Boulevard - Suite 300 16 Boca Raton, Florida 33431-8561 561.962.2100 17 pcgallagher@duanemorris.com Counsel for Defendants Prinston Pharmaceutic Inc., 18 Zhejiang Huaihai Pharmaceutic Co., Ltd; Solco Healthcare U.S., LLC and Huaihai U.S., Inc.</p> <p>19</p> <p>20 CIPRIANI &amp; WERNER BY: JESSICA M. HEINZ, ESQUIRE 21 450 Sentry Parkway - Suite 200 Blue Bell, Pennsylvania 19422 22 610.567.0700 jheinz@c-wlaw.com 23 Counsel for Defendant Aurobindo Pharma Ltd.</p> <p>24</p> <p>25</p>	<p>Page 2</p> <p>1 APPEARANCES: (All appearances via Zoom)</p> <p>2</p> <p>3 HINSHAW &amp; CULBERTSON LLP 4 BY: KATHLEEN E. KELLY, ESQUIRE 53 State Street - 27th Floor 5 Boston, Massachusetts 02109 617.213.7000 6 kekelly@hinshaw.com Counsel for the Defendants Sciegen Pharmaceuticals 7 Inc. and H.J. Harkins Company Inc.</p> <p>8</p> <p>9 BARNE &amp; THORNBURG LLP BY: KARA KAPKE, ESQUIRE 11 South Meridian Street 10 Indianapolis, Indiana 46204 317.236.1313 11 kara.kapke@btflaw.com Counsel for the Defendants CVS and Rite Aid</p> <p>12</p> <p>13 WALSH PIZZI O'REILLY FALANGA LLP BY: LISA M. WALSH, ESQUIRE 14 Three Gateway Center 100 Mulberry Street - 15th Floor 15 Newark, New Jersey 07102 973.757.1100 16 lwalsh@walsh.law Counsel for the Defendant Teva</p> <p>17</p> <p>18 BUCHANAN INGERSOLL &amp; ROONEY PC BY: CHRISTOPHER B. HENRY, ESQUIRE 19 Carillon Tower 227 West Trade Street - Suite 600 20 Charlotte, North Carolina 28202-2601 704.444.3300 21 chrisopher.henry@bipc.com Counsel for Albertsons LLC</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

1  
2 APP E A R A N C E S:  
3 (All appearances via Zoom)  
4 FALKENBERG IVES LLP  
5 BY: MEGAN A. ZMICK, ESQUIRE  
6 230 West Monroe Street - Suite 2220  
7 Chicago, Illinois 60606  
8 312.566.4801  
9 maz@falkenbergives.com  
10 Counsel for the Defendant Humana Pharmacy  
11  
12 ALSO PRESENT:  
13  
14 JUSTIN BILEY  
15 Legal Videographer and Concierge

Page 5

Page 7

1 REQUEST PAGE  
2 INSTRUCTIONS NOT TO ANSWER:  
3 Page Line  
4 None  
5 REQUEST FOR PRODUCTION OF DOCUMENTS:  
6 Page Line Description  
7 None  
8 STIPULATIONS:  
9 Page Line  
10 None  
11 QUESTIONS MARKED:  
12 Page Line  
13 None  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

## EXHIBITS

Page 6

Page 8

EXHIBIT NUMBER	DESCRIPTION	PAGE
EX 28	Document	76
EX 29	Search criteria	77
EX 30	Bradford Hill criteria	107

1	TABLE OF CONTENTS	
2	MAHYAR ETMINAN	
3	Examination	
4	By Mr. Gallagher.....	Page 9
5	By Mr. Trischler.....	Page 9
6	By Ms. Kapke.....	Page 60
7	By Mr. Fowler.....	Page 63
8	Notice to Read & Sign.....	Page 120
9	Reporter Certificate.....	Page 122
10	Index of Exhibits.....	Page 6
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

<p>1        THE VIDEOGRAPHER: The time is now      2        8:32. This is a continuation of      3        Mahyar Etminan's deposition. We are back on      4        the record.</p> <p>5 EXAMINATION BY MR. GALLAGHER:</p> <p>6        Q      Good morning, Dr. Etminan.</p> <p>7        A      Good morning.</p> <p>8        Q      At this time, I don't -- at this time      9        I don't have further questions for you. Some of the      10      other defense counsel do, so I'm going to turn it      11      over to counsel for Mylan.</p> <p>12 EXAMINATION BY MR. TRISCHLER:</p> <p>13      Q      Good morning, Doctor.</p> <p>14      A      Good morning.</p> <p>15      Q      I'll just start by introducing myself      16      to you. My name's Clem Trischler. I represent the      17      Mylan defendants in this litigation. I'll be asking      18      you some questions following up on Mr. Gallagher.      19              If you can -- if you have any trouble      20      hearing me, please let me know so I can rephrase or      21      repeat the question. Okay?</p> <p>22      A      Okay.</p> <p>23      Q      Let me start by asking you this      24      relatively simple and straightforward question,      25      Doctor. Would you agree with me that NDMA and NDEA</p>	<p>Page 9</p> <p>1        on a daily basis?      2        A      No, not personally.      3        Q      Have you done any original research in      4        your career that's been designed to determine or      5        calculate the baseline daily exposure to NDEA?      6        A      No.      7        Q      Are you aware of the fact that there      8        are studies that have been published in the      9        peer-reviewed literature that suggest that dietary      10      intake of NDEA and NDMA can be as high as 2,000      11      nanograms per day for the average American?      12      MR. NIGH: Form objection.      13      THE WITNESS: That -- I mean, that's      14      possible. I don't remember of a specific      15      paper, but that's possible.      16      BY MR. TRISCHLER:      17      Q      Okay. And are you aware of the same      18      studies suggesting that smokers have a daily intake      19      of NDEA and NDMA that can be as high as 20,000 --      20      25,000 nanograms per day?      21      A      I'm not aware of studies, but it's      22      possible that's the case.      23      MR. NIGH: Form objection to that      24      question.      25</p>
<p>1        are ubiquitous?      2        MR. NIGH: Form objection.      3        THE WITNESS: Yes, generally speaking.      4 BY MR. TRISCHLER:      5        Q      Those compounds are found virtually      6      everywhere, true?      7        MR. NIGH: Form objection.      8        THE WITNESS: Generally speaking, yes.      9 BY MR. TRISCHLER:      10      Q      NDMA and NDEA are found in the air we      11      breathe, in the water we drink and in the food we      12      eat, correct?      13      A      Yes.      14      Q      In fact, I think you wrote in your      15      report that NDMA and NDEA are found in pesticides,      16      hair dye, air, water and food. That's what you      17      wrote I think on Page 7 of your report, right?      18      A      Yes.      19      Q      So it's a known fact that each and      20      every one of us are exposed to nitrosamines such as      21      NDMA and NDEA on a daily basis, true?      22      A      Yes.      23      Q      And as part of your work in this case,      24      have you attempted to quantify the baseline level of      25      exposure to NDEA that the average American receives</p>	<p>Page 10</p> <p>1        BY MR. TRISCHLER:      2        Q      Assuming there are studies that      3      suggest daily intake of nitrosamines for smokers can      4      be as high as 20,000 to 25,000 nanograms per day, do      5      you have any scientific basis to dispute that fact?      6        MR. NIGH: Form objection.      7        THE WITNESS: Well, I mean I have      8      to -- I have to read the scientific paper and      9      then see exactly how that number was derived.      10      So I think you're asking me a very general      11      question.      12      BY MR. TRISCHLER:      13      Q      Well, I don't know whether it's      14      general or specific. I'm just asking you a      15      question, and the question is this: As you sit here      16      today providing testimony under oath, are you aware      17      of any evidence to suggest that daily intake of      18      nitrosamines for smokers is something other than 20      19      to 25,000 nanograms per day on average?      20      MR. NIGH: Form objection.      21      THE WITNESS: I -- I don't -- I didn't      22      look at nitrosamine exposure among smokers, so,      23      again, this is -- this is not an area that I      24      specifically looked at. I know generally      25      speaking, smokers could have a higher</p>

<p>1 concentration of NDMA than nonsmokers.</p> <p>2 BY MR. TRISCHLER:</p> <p>3 Q And I think what you said as part of</p> <p>4 your research in this case and part of your work in</p> <p>5 this case, you did not do any analysis to determine</p> <p>6 baseline exposures for either NDEA or NDMA, right?</p> <p>7 MR. NIGH: Form objection.</p> <p>8 THE WITNESS: Yes.</p> <p>9 BY MR. TRISCHLER:</p> <p>10 Q Would you agree that if an individual</p> <p>11 consumes alcohol, his or her daily exposure to NDEA</p> <p>12 and NDMA would be expected to increase?</p> <p>13 A Than a nonalcoholic, yes.</p> <p>14 Q Well, not just a known alcoholic, but</p> <p>15 anyone that consumes alcohol. I like a beer or</p> <p>16 two from time to time, and I don't think I'm an</p> <p>17 alcoholic. But when I consume alcohol, research</p> <p>18 suggests that my daily intake of nitrosamines is</p> <p>19 going to go up. Wouldn't you agree?</p> <p>20 A It's -- yeah, it's going to go -- it's</p> <p>21 going to be higher than, you know, when you were not</p> <p>22 taking alcohol or compared to somebody who's not</p> <p>23 taking alcohol.</p> <p>24 Q Sure, so -- so we can agree that</p> <p>25 there's a baseline of exogenous exposure to NDEA and</p>	<p>Page 13</p> <p>1 THE WITNESS: Yes.</p> <p>2 BY MR. TRISCHLER:</p> <p>3 Q Nothing in your report that's been</p> <p>4 filed with the court in this case quantifies</p> <p>5 baseline NDEA or NDMA exposures, agreed?</p> <p>6 MR. NIGH: Object to form.</p> <p>7 THE WITNESS: Yes.</p> <p>8 BY MR. TRISCHLER:</p> <p>9 Q And at the outset of yesterday when</p> <p>10 you were being asked questions by Mr. Gallagher,</p> <p>11 what I recall you stating is that what you were</p> <p>12 retained to do was to review the literature and</p> <p>13 provide an answer to the question of whether NDMA,</p> <p>14 regardless of route of administration, could</p> <p>15 plausibly cause cancer in humans. That was the</p> <p>16 question you were asked, and you -- and you</p> <p>17 undertook a literature review to try to answer that</p> <p>18 question, correct?</p> <p>19 A Yes.</p> <p>20 Q And while that was the question you</p> <p>21 were asked to evaluate, I think, as we have just</p> <p>22 established, there were other questions concerning</p> <p>23 NDMA and NDEA that you never examined, right?</p> <p>24 A Well, what do you mean by "other</p> <p>25 questions"?</p>
<p>1 NDMA that all of us experience, right?</p> <p>2 A Yes.</p> <p>3 Q All of us have a lifetime of exposures</p> <p>4 to NDMA and NDEA, right?</p> <p>5 A Yes.</p> <p>6 Q Every plaintiff in this litigation has</p> <p>7 been exposed to NDMA and NDEA throughout their</p> <p>8 lifetimes just like you and I have, right?</p> <p>9 A Yes.</p> <p>10 Q In this case, though, you've done</p> <p>11 nothing to independently assess, evaluate or</p> <p>12 quantify what that baseline exposure is, right?</p> <p>13 MR. NIGH: Form objection.</p> <p>14 THE WITNESS: You're talking about me</p> <p>15 undertaking a study, looking at your question.</p> <p>16 That was not what I did or I was asked to do.</p> <p>17 BY MR. TRISCHLER:</p> <p>18 Q I understand. That's what I'm just</p> <p>19 trying to clarify. There were things were you asked</p> <p>20 to do and things you were not.</p> <p>21 And one of the things you have not</p> <p>22 done is to quantify a baseline exposure for NDEA and</p> <p>23 NDMA for any plaintiff in this litigation or any</p> <p>24 average person in the community, right?</p> <p>25 MR. NIGH: Form objection.</p>	<p>Page 14</p> <p>1 Q Well, for instance, we talked about</p> <p>2 the fact that you never researched the amounts of</p> <p>3 NDMA that the average American adult consumes on a</p> <p>4 daily basis, right?</p> <p>5 A I do have in my report a citation of</p> <p>6 general range of exposure of NDMA in -- you know, in</p> <p>7 the American diet. And I agree with you that, you</p> <p>8 know, generally, they are all exposed to NDMA, you</p> <p>9 know, from the environment or from air or what have</p> <p>10 you.</p> <p>11 Q Right. And I think you agreed with me</p> <p>12 that daily exposure is on the order of</p> <p>13 2,000 nanograms per day. But my question was that</p> <p>14 was not the -- determining that average baseline</p> <p>15 exposure from dietary intake was not the question</p> <p>16 that you were asked to answer?</p> <p>17 MR. NIGH: Hold on. Hold on. Object</p> <p>18 to form, mischaracterizes his testimony. Never</p> <p>19 was there an agreement that the average</p> <p>20 baseline is 2,000 nanograms of NDMA.</p> <p>21 You can answer.</p> <p>22 MR. TRISCHLER: I don't think speaking</p> <p>23 objections are permitted, Daniel, so please</p> <p>24 don't do it.</p> <p>25 MR. NIGH: Well, you can't</p>

<p>1 mischaracterize testimony.</p> <p>2 MR. TRISCHLER: Well, I think you can</p> <p>3 object to form, but let's not -- let's not</p> <p>4 start testifying, please.</p> <p>5 MR. NIGH: Okay. Form objection.</p> <p>6 THE WITNESS: Yes.</p> <p>7 BY MR. TRISCHLER:</p> <p>8 Q And you never researched the amount of</p> <p>9 NDEA that the average American consumes on a daily</p> <p>10 basis, right?</p> <p>11 A Yes.</p> <p>12 Q You have not reviewed the cases of any</p> <p>13 plaintiff in this litigation to calculate their</p> <p>14 cumulative -- cumulative lifetime exposure to NDMA</p> <p>15 or NDEA prior to the time they consumed any</p> <p>16 valsartan-containing medication, right?</p> <p>17 A Correct.</p> <p>18 Q Have you ever -- we have been talking</p> <p>19 about exogenous exposure, but have you ever</p> <p>20 independently researched endogenous formation of</p> <p>21 nitrosamines where the extent of endogenous</p> <p>22 formation that occurs prior to the time you were</p> <p>23 retained in this case?</p> <p>24 A No.</p> <p>25 Q And in connection with your work in</p>	<p>Page 17</p> <p>1 published by a gentleman named Jakszyn as the lead</p> <p>2 author -- lead author, excuse me. Jakszyn is</p> <p>3 spelled J-a-k-s-z-y-n, I believe. Do you recall</p> <p>4 that paper?</p> <p>5 A Yes.</p> <p>6 Q I think it was entitled "Endogenous</p> <p>7 Versus Exogenous Exposure to Nitroso Compounds" and</p> <p>8 was marked as Exhibit 12, yesterday. Do you</p> <p>9 remember that?</p> <p>10 A Right.</p> <p>11 Q And according to that paper by</p> <p>12 Jakszyn, we're exposed to over 93,000 nanograms of</p> <p>13 nitrosamines every single day. Do you remember</p> <p>14 that?</p> <p>15 MR. NIGH: Form objection.</p> <p>16 THE WITNESS: I do remember that.</p> <p>17 BY MR. NIGH:</p> <p>18 Q And as part of your work in this case,</p> <p>19 you have not done any independent research studies</p> <p>20 or testing to -- to suggest or establish that the</p> <p>21 estimates of total nitrosamine exposure as predicted</p> <p>22 by Jakszyn were incorrect, fair to say?</p> <p>23 A Yes.</p> <p>24 Q And I trust you'd agree with me that</p> <p>25 if you want to evaluate the impact of nitrosamines</p>
<p>1 this case, have you ever done any research to try</p> <p>2 and answer the question of the extent of endogenous</p> <p>3 formation of nitrosamines that occurs in the human</p> <p>4 body?</p> <p>5 A No. I mean, that -- that is not my</p> <p>6 field of expertise.</p> <p>7 Q Understood.</p> <p>8 Are you aware of any research</p> <p>9 suggesting that all of us endogenously form</p> <p>10 nitrosamines in our body at levels even higher than</p> <p>11 what we consume exogenously?</p> <p>12 A I know that there is potential for</p> <p>13 endogenous formation of NDMA in -- in the human</p> <p>14 body.</p> <p>15 Q Right. And in reading some of the</p> <p>16 studies that you cite in your report, and that you</p> <p>17 were kind enough to discuss with us yesterday, some</p> <p>18 of those studies suggest that the level of</p> <p>19 nitrosamines that form endogenously are far greater</p> <p>20 than what we consume on a daily basis, right?</p> <p>21 MR. NIGH: Form objection.</p> <p>22 THE WITNESS: Yes.</p> <p>23 BY MR. TRISCHLER:</p> <p>24 Q In fact, I think one of the papers</p> <p>25 that was cited in your report was a paper that was</p>	<p>Page 18</p> <p>1 in valsartan-containing medications, what we need to</p> <p>2 consider is the extent to which individual</p> <p>3 consumption of NDMA and NDEA increase due to the</p> <p>4 presence of those compounds in the drugs, right?</p> <p>5 MR. NIGH: Form objection.</p> <p>6 THE WITNESS: I mean, if you want to</p> <p>7 do a perfect study, yes, that's -- that's what</p> <p>8 needs to be done.</p> <p>9 BY MR. TRISCHLER:</p> <p>10 Q And in assessing carcinogenicity of</p> <p>11 any compound, you agree that dose and duration of</p> <p>12 exposure are always important, right?</p> <p>13 A Generally speaking, yes.</p> <p>14 Q Right. Well, in fact, yesterday, we</p> <p>15 discussed the Pottegard and Gomm studies. Do you</p> <p>16 remember that?</p> <p>17 A Yes.</p> <p>18 Q And one of the things I remember from</p> <p>19 your testimony yesterday was that you were critical</p> <p>20 of those studies because the amount of NDMA exposure</p> <p>21 was not specified in the controls. Do you recall</p> <p>22 telling us that?</p> <p>23 A Yes.</p> <p>24 Q And you told us that, you know, for</p> <p>25 that -- in that study, you would have liked to have</p>

<p style="text-align: right;">Page 21</p> <p>1 seen the controls broken down by high exposure,      2 medium exposure and low exposure. Do you remember      3 telling us that?</p> <p>4 A Yes.</p> <p>5 Q And the inference from that is that      6 you wanted them broken down that way because dose      7 and duration are undoubtedly important and      8 undoubtedly contribute to carcinogenicity, right?</p> <p>9 A Yes.</p> <p>10 MR. NIGH: Form objection.</p> <p>11 BY MR. TRISCHLER:</p> <p>12 Q And in this case, you've been very      13 clear and very honest and open in telling us that      14 you have not done any work to -- since you have not      15 done any work to establish baseline exposures,      16 right?</p> <p>17 MR. NIGH: Form objection.</p> <p>18 THE WITNESS: Yes, I think I have      19 answered that already.</p> <p>20 BY MR. TRISCHLER:</p> <p>21 Q Right. And since you have not done      22 any work to establish baselines, you can't tell us      23 the extent to which any plaintiff's daily intake of      24 NDMA or NDEA increased due to the use of      25 valsartan-containing medications, right?</p>	<p style="text-align: right;">Page 23</p> <p>1 Q And the -- as part of your work in      2 this case, did you -- did you calculate the mean      3 parts per million that was observed in Mylan's      4 product?</p> <p>5 A I remember I may have calculated      6 either the mean or the -- or the higher range of the      7 PPM.</p> <p>8 Q Well, if you calculated a mean, what      9 did you calculate?</p> <p>10 A I don't remember off the top of my      11 head. But I mean, if I can just do a quick      12 calculation if you tell me what the -- if I can --      13 I'm just looking at my report.</p> <p>14 Q Well, to calculate the mean, you'd      15 need to know a lot more than just what the lower      16 bound and what the upper bound of the range was,      17 right?</p> <p>18 A Yes.</p> <p>19 Q Right. And the only information you      20 have in your report is the low -- low range being      21 .01 parts per million, and the high being 1.57 parts      22 per million -- per million. So how would you      23 calculate a mean? But you can't calculate a mean      24 based on that. You'd need other data and other      25 information.</p>
<p style="text-align: right;">Page 22</p> <p>1 A Correct.</p> <p>2 Q So if we -- I told you at the outset I      3 introduced myself, my client is Mylan. If we use      4 Mylan as an example. You reference my client I      5 think only in one place in that -- in your --</p> <p>6 THE COURT REPORTER: I'm sorry. You      7 cut out.</p> <p>8 BY MR. TRISCHLER:</p> <p>9 Q I said you reference Mylan only in one      10 place in your entire report. Would you agree?</p> <p>11 A I believe it's the -- the part where I      12 show the ranges of -- of NDMA in the product.</p> <p>13 Q Agreed.</p> <p>14 You -- you -- you provided us with a      15 40-page report, and the only place where you ever      16 mention my client is in a footnote on Page 8,      17 correct?</p> <p>18 A Yes. I wasn't asked to write reports      19 for different manufacturers.</p> <p>20 Q I understand. But in that footnote,      21 you suggest that NDEA concentrations in some of      22 Mylan's products were found to range from .01 parts      23 per million to 1.57 parts per million. Do you      24 remember writing that?</p> <p>25 A Yes.</p>	<p style="text-align: right;">Page 24</p> <p>1 A Yeah, I probably -- I probably just --</p> <p>2 MR. NIGH: Hold on. Hold on. Let me      3 object to the form first. Form objection.</p> <p>4 You can answer, Doctor.</p> <p>5 THE WITNESS: I probably only looked      6 at the higher -- higher end of the 1.57.</p> <p>7 BY MR. TRISCHLER:</p> <p>8 Q So -- so your best recollection,      9 sitting here today, is you never calculated a mean      10 concentration of NDEA in the Mylan product, right?</p> <p>11 A Right.</p> <p>12 Q Well, I'll represent to you that      13 the -- for purposes of my questions that the mean      14 concentration for -- in Mylan's product is observed      15 to be 0.047 parts per million, okay?</p> <p>16 A Okay.</p> <p>17 Q And if we assume the -- did you --      18 were you made aware of the fact that the largest      19 concentration in which valsartan-containing      20 medications or the largest dose in which      21 valsartan-containing medications were made available      22 in the United States was 320 milligrams per day?</p> <p>23 A Yes.</p> <p>24 Q And so if the mean is .047 parts per      25 million, and we assume the largest dose of</p>

<p style="text-align: right;">Page 25</p> <p>1 320 milligrams, that results in a mean exposure of      2 150 nanograms, correct?      3 A Correct.      4 Q So going back to Jakszyn's data in      5 Exhibit 12 that you -- in his paper that you      6 included with your report, if his estimate of      7 nitrosamine exposure of 93,000 nanograms per day is      8 accurate, in 150 nanogram --</p> <p>9 THE COURT REPORTER: I'm sorry. You      10 broke up. You broke up.</p> <p>11 MR. TRISCHLER: I'll start over.</p> <p>12 BY MR. TRISCHLER:</p> <p>13 Q If we assume the data from Jakszyn's      14 paper is accurate, then adding a 150-nanogram      15 exposure to a daily nitrosamine exposure of 93,000      16 nanograms is minuscule, correct?</p> <p>17 MR. NIGH: Object to form. Object to      18 form.</p> <p>19 THE WITNESS: Well, again, we --      20 that's -- the Jakszyn study is one study. It      21 has some limitations. Back to your -- back to      22 your point, the 150, I believe the -- the Mylan      23 nanogram per -- the mean Mylan nanogram per day      24 of 150 is -- one has to look at this as a      25 cumulative exposure. So patients would be</p>	<p style="text-align: right;">Page 27</p> <p>1 MR. TRISCHLER: Objection, move to      2 strike as nonresponsive.</p> <p>3 BY MR. TRISCHLER:</p> <p>4 Q Let's see if we can try this again,      5 Doctor.</p> <p>6 A 150-nanogram exposure is minuscule      7 compared to a 93,000-nanogram exposure, right?</p> <p>8 MR. NIGH: Object to form.</p> <p>9 THE WITNESS: Yes.</p> <p>10 BY MR. TRISCHLER:</p> <p>11 Q It's .01 percent of the total      12 exposure, simple math, right?</p> <p>13 MR. NIGH: Object to form.</p> <p>14 THE WITNESS: Yes, but you are -- you      15 are -- you're assuming that the -- that there      16 is one patient taking -- exposed to endogenous      17 X amount -- I don't know if the Jakszyn study      18 is -- is the true endogenous value. But let's      19 say there is an X amount of endogenous NDMA in      20 one person. That person is being -- is adding      21 to that, cumulatively, an extra dose. You're      22 assuming that the other people who are not      23 taking that extra dose do not have endogenous      24 exposure, and only that patient has endogenous      25 plus exogenous exposure.</p>
<p style="text-align: right;">Page 26</p> <p>1 taking this over extended period of time. 150      2 is still higher than the -- the recommended or      3 the allowable daily dose by the FDA.</p> <p>4 And you are sort of assuming that only      5 the patient who's taking the 150-nanogram Mylan      6 dose has that endogenous exposure -- sort of      7 exposure to endogenous nitrosamines as well.      8 In other words, you know, in the population, as      9 we spoke earlier, we are all exposed to      10 nitrosamines. So population-wise, there is no      11 reason to believe that the people who are not      12 taking that extra dose of Mylan also do not      13 have endogenous exposure to NDMA.</p> <p>14 What I'm trying to say is that      15 endogenous exposure in the population is      16 probably very similar, at least in the American      17 population, based on the diet. And if a      18 patient is taking an extra dose of 150      19 nanograms per day of Mylan or any other      20 exposures, an extra dose added to that baseline      21 dose, which again is higher than the      22 recommended daily dose by the FDA, cumulatively      23 over a long period of time, it is possible that      24 that dose could potentially increase the risk      25 of cancer.</p>	<p style="text-align: right;">Page 28</p> <p>1 What I'm trying to say that in a      2 population, as we discussed, where diets are      3 pretty stable, and this is in the U.S., for the      4 most part, most people will have that baseline      5 endogenous exposure. So the person who's      6 taking the exogenous NDMA in valsartan, you'll      7 have -- you'll have an added extra risk if      8 you're taking it cumulatively every day.</p> <p>9 So that -- that's what I was trying to      10 explain to you.</p> <p>11 BY MR. TRISCHLER:</p> <p>12 Q I think I understand, Doctor. I'm not      13 making the assumption that you believe I am. I      14 agree with you 100 percent, that every one of us has      15 exogenous and endogenous exposures to nitrosamines.      16 And if Jakszyn is correct, that that exposure is on      17 the order of 93,000 nanograms per day.</p> <p>18 And so my -- so the issue in this      19 case, then, is does an exposure of an extra      20 150-nanograms representing a .01 percent increase in      21 that exposure level result in a substantial --      22 statistically significant increased risk of cancer.      23 That's the question I want to answer.</p> <p>24 And what I'm asking hearing from you      25 is that's not a question -- I haven't asked the</p>

<p style="text-align: right;">Page 29</p> <p>1 question. That's not a question you ever answered      2 in this case. You certainly don't answer it in your      3 report, right?</p> <p>4 MR. NIGH: Hold on. Object to the      5 colloquy, argumentative.</p> <p>6 You can answer.</p> <p>7 THE WITNESS: So, again, as I      8 mentioned yesterday, I'd love to answer that      9 question. But the -- the type of question      10 you're asking, data for that question, good      11 data, is not available. What I was asked to do      12 is to answer the question as a general      13 causation question, does exposure to NDMA over      14 time increase the risk of cancer. So that's      15 what I -- that's what my systematic review      16 addressed.</p> <p>17 BY MR. TRISCHLER:</p> <p>18 Q Understood.</p> <p>19 A I did not -- I did not address mostly      20 because I -- you know, I did search for the data.      21 But that specific question that you're asking -- and      22 it's quite more of an individual -- you know,      23 individual causation question rather than a general      24 causation question. So I did not answer that, the      25 type of question you're asking.</p>	<p style="text-align: right;">Page 31</p> <p>1 question, agreed?</p> <p>2 MR. NIGH: Object to the form.</p> <p>3 You can answer.</p> <p>4 THE WITNESS: I answered the question      5 that NDMA exposure over time increases the risk      6 of cancer. I did not answer the question of      7 incremental increase, and I really don't      8 understand what you mean by "statistically      9 significant."</p> <p>10 But I did not answer the question      11 whether incremental increase of any specific      12 doses of NDMA increased the risk of cancer. I      13 answered a more general question of exposure,      14 exposure over time versus cancer risk.</p> <p>15 BY MR. TRISCHLER:</p> <p>16 Q In your review of the scientific      17 literature, did you find a single cohort or case      18 control study that reported that a 1 to 2-percent      19 increase in daily NDMA exposure would lead to a      20 statistically significant increased risk of      21 esophageal cancer?</p> <p>22 MR. NIGH: Object to form.</p> <p>23 THE WITNESS: Can you repeat the      24 question, please?</p> <p>25 BY MR. TRISCHLER:</p>
<p style="text-align: right;">Page 30</p> <p>1 Q Well, I agree with a lot of what you      2 said. I disagree that it's not a general causation      3 question.</p> <p>4 But I think what we can really agree      5 on is your statement that good data does not exist      6 to answer the question of whether an incremental      7 increase in nitrosamine exposures above the baseline      8 that we all experience will lead to a statistically      9 significant increased risk of cancer. It's not a      10 question that you answered, and the data is not      11 there to answer it. That's what you just told us      12 under oath, right?</p> <p>13 MR. NIGH: Object to form.</p> <p>14 You can answer.</p> <p>15 THE WITNESS: Again, I -- in my      16 report, I -- I was asked to answer whether      17 there is general causation with exposure to      18 NDMA over time. That's what I answered in my      19 report.</p> <p>20 BY MR. TRISCHLER:</p> <p>21 Q And you did not answer the question of      22 whether an incremental increase over some period      23 of -- over some period less than lifetime would lead      24 to a statistically significant increased risk of      25 cancer because the data is not there to answer that</p>	<p style="text-align: right;">Page 32</p> <p>1 Q In your review of the scientific      2 literature, did you find a single cohort or case      3 control study that reported that a 1 to 2-percent      4 increase in daily NDMA exposure would lead to a      5 statistically significant increased risk of      6 esophageal cancer?</p> <p>7 MR. NIGH: Object to form.</p> <p>8 THE WITNESS: I don't know if the      9 study looked at 1 to 2-percent increase, but      10 there are -- the dietary studies that I      11 included have looked at sort of a dose response      12 exposure of NDMA per day, looking at high      13 versus low doses with respect to cancer.</p> <p>14 BY MR. TRISCHLER:</p> <p>15 Q Can you cite me any study, as you sit      16 here today, where the authors looked at incremental      17 increases in nitrosamine exposure and concluded that      18 a 1 to 2-percent increase in NDMA or NDEA intake      19 would lead to an increased risk of cancer?</p> <p>20 A Can you clarify --</p> <p>21 MR. NIGH: Hold on. Hold on. Object      22 to the form.</p> <p>23 You can answer.</p> <p>24 THE WITNESS: Can you clarify what you      25 mean by "incremental increase"?</p>

<p>1 BY MR. TRISCHLER:</p> <p>2 Q What I'm -- what we've been talking 3 about, Doctor, that we all have a baseline of -- of 4 exposure that we have been receiving on a daily 5 basis. Let's assume that that baseline exposure is 6 2,000-nanograms. If we were exposed to 7 2,000-nanograms for the first 40 years of our life, 8 and then in year 41, we begin to -- that exposure 9 increases to 2,100 nanograms per day, what I want to 10 know is: Are there any studies to suggest that an 11 incremental increase in daily nitrosamine exposure 12 is expected to lead to an increased risk of cancer?</p> <p>13 MR. NIGH: Hold on. Hold on. Hold 14 on. Hold on. Object to the form.</p> <p>15 THE WITNESS: What I think you're -- 16 you're referring to is whether -- whether there 17 is a dose response increase with NDMA exposure 18 and cancer so that the more NDMA you take over 19 a period, your risk of cancer is higher.</p> <p>20 So again, some of the dietary studies 21 that I've discussed have looked at subjects who 22 have taken the highest cumulative dose of NDMA 23 in their diet and compared them to the -- to 24 the lowest, considering that all of those -- 25 all of that population is also exposed to some</p>	<p>Page 33</p> <p>1 not have looked at nitrosamines in the way 2 you're asking the question. But they have 3 looked at those response. You're -- you're 4 basically saying does somebody who has an 5 increase in 1 to 2 percent over five years, 6 does that person have a higher risk of cancer, 7 and I think what -- and I think what you mean, 8 and correct me if I'm wrong, is compared to 9 somebody who doesn't have that 1 to 2 percent 10 increase. That -- that is a dose response 11 question, and I'm -- and that has been looked 12 at in the dietary studies, not -- not exactly 13 the way you have put it. But they have looked 14 at cumulative dosing.</p> <p>15 BY MR. TRISCHLER:</p> <p>16 Q Well, I'm -- well, the way you phrased 17 the question is the way I'm looking for you to 18 answer it, Doctor.</p> <p>19 And -- and so my question is, tell me 20 the -- name me the dietary study where it says that 21 a slight, short duration increase in nitrosamine 22 exposure is gonna increase your risk for developing 23 cancer. I can -- I read your papers, the papers you 24 sent. I can't find it, so tell me where it is.</p> <p>25 MR. NIGH: Object to form. This is</p>
<p>Page 34</p> <p>1 level of endogenous NDMA through their diet. 2 They have looked at exogenous NDMA 3 using dietary measures and looked at that dose 4 response. So I think, again, your -- I think 5 your question is whether there's a dose 6 response relation. And I have shown in my 7 report that some of these dietary studies have 8 shown a dose response.</p> <p>9 BY MR. TRISCHLER:</p> <p>10 Q That's not -- that wasn't my question, 11 but let me -- so let me try to ask it again.</p> <p>12 Name me a study that's in your report 13 or that you uncovered in your research that 14 establishes that there is an increased risk of 15 cancer if my nitrosamine intake is increased by 16 5 percent for a period of five years.</p> <p>17 MR. NIGH: Sorry. Was that the end of 18 the question?</p> <p>19 MR. TRISCHLER: Yes.</p> <p>20 MR. NIGH: Okay. Object to form.</p> <p>21 THE WITNESS: Again, I think -- I 22 think you're asking -- I think your question is 23 asking the same concept of a dose response in a 24 different fashion.</p> <p>25 And so again, if -- the studies may</p>	<p>Page 36</p> <p>1 getting argumentative, lots of colloquy. It's 2 inappropriate. It's not a question.</p> <p>3 MR. TRISCHLER: It's a question. It 4 might not be a good one, Dan, but it's a 5 question.</p> <p>6 MR. NIGH: But the -- "I've read your 7 report. I can't find out where it is." You 8 know, that's not a question. That's 9 argumentative. It's inappropriate.</p> <p>10 THE WITNESS: Again, the -- the -- the 11 dose response analysis done in the dietary 12 studies look at or present a dose response 13 relation. They have not looked at it the way 14 you have portrayed your question or the way you 15 want the dose response to be looked at. But 16 they have addressed -- I still think that your 17 question -- your question is a dose response 18 question. And they have addressed dose 19 response in the way that all dietary studies 20 address them, high dose versus low dose. What 21 is the risk? Is there a difference in risk?</p> <p>22 BY MR. TRISCHLER:</p> <p>23 Q And what you're saying -- what you're 24 suggesting with your answer is the same thing I 25 think we already talked about, and that is that dose</p>

<p>1 and duration do matter, correct?</p> <p>2 A Yes.</p> <p>3 Q Right. And so what I'm trying to</p> <p>4 define is when does the dose and duration exposure</p> <p>5 to nitrosamines lead to an increased risk of cancer?</p> <p>6 Where do we draw the line? You have cited in your</p> <p>7 report -- you have got 71 references listed in this</p> <p>8 report, correct?</p> <p>9 A Yes.</p> <p>10 Q Tell me by number which one of those</p> <p>11 71 references that I can go to that is going to</p> <p>12 suggest that if I increase my daily nitrosamine</p> <p>13 exposure by 5 percent or less for some period of</p> <p>14 time, that I'm -- I'm at an increased risk for</p> <p>15 cancer? Does that -- does that data exist anywhere?</p> <p>16 MR. NIGH: Objection.</p> <p>17 THE WITNESS: Again, the -- the way --</p> <p>18 the question that you're asking me, that --</p> <p>19 that type of analysis, I -- I did not find.</p> <p>20 But I did include, as you mentioned, dietary</p> <p>21 studies of the dose response analysis.</p> <p>22 BY MR. TRISCHLER:</p> <p>23 Q We talked about the fact that all of</p> <p>24 us are exposed to NDMA and NDEA on a regular basis,</p> <p>25 true?</p>	<p>Page 37</p> <p>1 done it. And I was not -- that's not what I was</p> <p>2 asked to do.</p> <p>3 Q Are you familiar with the concept of</p> <p>4 permissible daily exposure?</p> <p>5 A Yes.</p> <p>6 Q Is it true that permissible daily</p> <p>7 exposure is defined as a dose that's unlikely to</p> <p>8 cause an adverse effect if the individual is exposed</p> <p>9 at or below that dose for a lifetime?</p> <p>10 A I believe that's what it stands for.</p> <p>11 Q Okay. Have you ever calculated a</p> <p>12 permissible daily exposure for any nitrosamine?</p> <p>13 A No, because I relied on the</p> <p>14 epidemiologic studies that I looked at. I mean, the</p> <p>15 permissible daily exposure mostly comes from animal</p> <p>16 data.</p> <p>17 Q I'm just asking if you have ever</p> <p>18 calculated a PDE for any nitrosamine?</p> <p>19 A No. I appreciate that, but I just</p> <p>20 need to be able to explain myself. So, no, I have</p> <p>21 not.</p> <p>22 Q Do you agree there is one though,</p> <p>23 right?</p> <p>24 A There is one, for example, the FDA has</p> <p>25 one, yes.</p>	<p>Page 39</p>
<p>1 A Correct.</p> <p>2 Q But we can agree that while all of us</p> <p>3 are exposed to NDMA and NDEA every day, not all of</p> <p>4 us are going to develop cancer, correct?</p> <p>5 A Yes.</p> <p>6 Q So there's obviously a threshold dose</p> <p>7 or a threshold exposure at which NDMA and NDEA will</p> <p>8 not cause harm, agreed?</p> <p>9 MR. NIGH: Object to form.</p> <p>10 THE WITNESS: I -- I don't know. I</p> <p>11 don't know the answer to that question.</p> <p>12 BY MR. TRISCHLER:</p> <p>13 Q You have never calculated a threshold</p> <p>14 dose for NDEA, have you?</p> <p>15 A Well, you're -- your question is not</p> <p>16 about the threshold dose on NDMA -- NDEA. I believe</p> <p>17 your question is whether there is a threshold dose</p> <p>18 in causing cancer, and so that requires another</p> <p>19 study. It's not as simple as just calculating</p> <p>20 threshold dose.</p> <p>21 BY MR. TRISCHLER:</p> <p>22 Q Well, I'm just asking you if you've</p> <p>23 ever done it.</p> <p>24 A No, because that requires, again, a</p> <p>25 very large sophisticated study, and I -- I have not</p>	<p>Page 38</p> <p>1 Q Well, the FDA has an acceptable intake</p> <p>2 level that it's established for nitrosamine levels</p> <p>3 in drug products, but that's not a PDE, is it?</p> <p>4 MR. NIGH: Object to form.</p> <p>5 THE WITNESS: It may not be. I'll</p> <p>6 have to -- I'd have to check.</p> <p>7 BY MR. TRISCHLER:</p> <p>8 Q Well, just think about it. We've</p> <p>9 already -- we've already talked about and</p> <p>10 established that nitrosamines are ubiquitous and</p> <p>11 we're exposed to them from lots of sources, not just</p> <p>12 drugs, right?</p> <p>13 A Yes.</p> <p>14 Q Right. So there's a -- there's a</p> <p>15 permissible daily exposure for all nitrosamines</p> <p>16 including NDMA and NDEA. You've -- but you've not</p> <p>17 determined what they are, correct?</p> <p>18 MR. NIGH: Object to form.</p> <p>19 THE WITNESS: I don't know -- I mean,</p> <p>20 I could have during my research, but it doesn't</p> <p>21 ring a bell right now.</p> <p>22 BY MR. TRISCHLER:</p> <p>23 Q And you don't recall seeing any data</p> <p>24 suggesting a PDE for NDEA or NDMA, right?</p> <p>25 A Correct.</p>	<p>Page 40</p>

<p>1 Q Are you aware of any research that's 2 been published in the peer-reviewed literature 3 suggesting that a short-term increase in NDEA or 4 NDMA exposure above the PDE will lead to an 5 increased risk of cancer in humans? 6 MR. NIGH: Object to form. 7 THE WITNESS: No.</p> <p>8 BY MR. TRISCHLER: 9 Q So if I could summarize what I 10 understand your work in this case to be, Doctor, is 11 that -- your focus was on addressing the general 12 question of whether the literature supports a 13 plausible causal connection between NDMA and cancer 14 in humans, right? 15 MR. NIGH: Object to form. 16 THE WITNESS: Yes. 17 BY MR. TRISCHLER: 18 Q I didn't hear your answer because of 19 the objection. 20 A Yes. 21 Q And your -- your research was not 22 focused on dose or duration or on examining the 23 impact of incremental increases in daily exposures, 24 right? 25 MR. NIGH: Object to form.</p>	<p>Page 41</p> <p>1 Q Okay. Had you ever participated in 2 any epidemiological studies involving NDEA? 3 A No. 4 Q Had you ever participated in any 5 animal study -- or excuse me. Have you ever 6 participated in any epidemiological studies 7 involving NDMA? 8 A No. 9 Q Prior to the time the plaintiffs' 10 lawyers knocked on your door to ask you to work on 11 this case, had you ever done any work in your 12 professional career with nitrosamines? 13 A No. 14 Q So is it fair to say that in your 15 career as a -- in the fields of pharmacology and 16 epidemiology, that you never researched, studied or 17 investigated the possible association of 18 nitrosamines and cancers before you were retained in 19 this case? 20 A I have done studies in the past on 21 carcinogens and cancer, but not specifically on 22 nitrosamines. 23 Q Right. And so since you had no 24 specific background in studying, researching or 25 investigating nitrosamines, the only basis for your</p>
<p>1 THE WITNESS: Yes. 2 BY MR. TRISCHLER: 3 Q And now I want to ask you some 4 questions specifically about NDEA. Before you were 5 retained in this case, had you ever done any 6 original clinical research on the carcinogenicity of 7 NDEA? 8 A No. 9 Q For that matter, before you were 10 retained by the plaintiffs' lawyers in this case, 11 had you ever done any original clinical research on 12 the carcinogenicity of NDMA? 13 A No. 14 Q Had you ever published any 15 peer-reviewed studies assessing or evaluating the 16 carcinogenicity of NDEA in humans? 17 A No. 18 Q Had you ever published any 19 peer-reviewed studies assessing or evaluating the 20 carcinogenicity of NDMA in humans? 21 A No. 22 Q Had you ever done any animal studies 23 or participated in any animal studies looking at the 24 carcinogenicity of any nitrosamine? 25 A No. I'm not a basic scientist, so no.</p>	<p>Page 42</p> <p>1 opinion as to whether NDMA or NDEA can cause cancer 2 in humans is the literature that -- review that you 3 did in connection with this case, right? 4 A Yes. 5 MR. NIGH: Object to form. 6 BY MR. TRISCHLER: 7 Q And in the -- with that literature 8 review, I want to ask you specifically about NDEA. 9 Did you identify in your literature 10 review any observational study in the literature 11 that found a statistically significant association 12 between NDEA and breast cancer? 13 A Specifically on breast cancer? 14 Q Yes, NDEA and breast cancer. 15 A No. 16 Q In your research for purposes of this 17 case, did you -- can you identify any observational 18 study that you found in the literature that reported 19 a statistically significant association between NDEA 20 and esophageal cancer? 21 A No. 22 Q In connection with your work in this 23 case, can you identify for me any observational 24 study in the literature that found a statistical -- 25 statistically significant association between NDEA</p>

<p>1 and stomach cancer?</p> <p>2 A No.</p> <p>3 Q In connection with your work in this case, can you identify any observational study that you found in the literature that found a statistically significant association between NDEA and colorectal cancer?</p> <p>4 A No.</p> <p>5 Q In connection with your work in this case, can you identify any observational study in the literature that found a statistically significant association between NDEA and liver cancer?</p> <p>6 A No.</p> <p>7 Q In connection with your work in this case, can you identify any observational study in the literature that found a statistically significant association between NDEA and lung cancer?</p> <p>8 A No.</p> <p>9 Q In connection with your work in this case, can you identify any observational study that found a statistically significant association between NDEA and bladder cancer?</p> <p>10 A No.</p>	<p>Page 45</p> <p>1 Q And would you agree with me that even while finding an association between pancreatic cancer and NDEA, the authors of the Zheng paper were careful to note that their observations were preliminary?</p> <p>2 A That's what they may have stated in their paper, yes.</p> <p>3 Q And isn't it true that the authors of that paper were careful to note that the findings and this reported association between NDEA and pancreatic cancer was merely preliminary?</p> <p>4 A If that's what they said in their paper, then that's what they said, but -- I mean, that's what --</p> <p>5 Q Well, you read -- you read it. Do you recall?</p> <p>6 A I have read a lot of these papers. I can read it now. I don't recall that statement, but --</p> <p>7 Q Isn't it true that the authors of the Zheng paper noted that their findings were preliminary and needed to be confirmed in a large prospective cohort study with consideration of sufficient time between diet assessment and disease diagnosis?</p>
<p>1 Q In connection with your work in this case, can you identify any observational study published in the literature that found a statistically significant association between NDEA and prostate cancer?</p> <p>2 A No.</p> <p>3 Q In connection with your work in this case, can you identify any observational study reported in the literature with a statistically significant association between NDEA and blood cancers?</p> <p>4 A No.</p> <p>5 Q In connection with your work in this case, can you identify any observational studies published in the literature that found a statistically significant association between NDEA and pancreatic cancer?</p> <p>6 A I identified one study by Zheng that looked at NDEA and found an increase in risk.</p> <p>7 Q And that -- that paper was -- the lead author was Zheng, Z-h-e-n-g, correct?</p> <p>8 A That's right.</p> <p>9 Q And that was published in 2018 in a publication called "Carcinogenesis"?</p> <p>10 A Yes.</p>	<p>Page 46</p> <p>1 MR. NIGH: Object to form.</p> <p>2 THE WITNESS: That is -- they are sort of portraying a perfect scenario. I'm not sure if -- and they call this preliminary. I'm not sure if there will ever be a large prospective study looking at this question again, but that's what they state.</p> <p>3 BY MR. TRISCHLER:</p> <p>4 Q Well, that was going to be my next question. Do you -- are you aware of the large prospective cohort study that Zheng and his colleagues recommended to be done, whether it was ever done?</p> <p>5 MR. NIGH: Object to form.</p> <p>6 THE WITNESS: I'm not aware.</p> <p>7 BY MR. TRISCHLER:</p> <p>8 Q We talked about my client, Mylan Pharmaceuticals, a bit and how you mentioned them in that footnote on Page 8.</p> <p>9 Can we agree that nowhere in your 40-page report that you filed in this case did you ever conclude that an increase in NDEA intake in the amounts contained in Mylan's valsartan-containing medication to cause cancer in humans?</p> <p>10 MR. NIGH: Can you repeat that? You</p>

<p>1       broke up. You broke up at the end.</p> <p>2           MR. TRISCHLER: Sure.</p> <p>3           MR. NIGH: Thank you.</p> <p>4 BY MR. NIGH:</p> <p>5       Q    Can we agree that nowhere in your report you ever conclude that an increase in NDEA intake in the amounts contained in Mylan's valsartan-containing medications was sufficient to cause cancer in humans?</p> <p>10      A    Yes.</p> <p>11      Q    And you -- and in your work in this case, you have not found a single study in the peer-reviewed literature that would support a statistically significant increased risk of any cancer from a short-term duration nitrosamine intake increase of 150 nanograms per day, right?</p> <p>17      A    You mean a specific study that -- that looks at that specific dosage and cancer?</p> <p>19      Q    Yes.</p> <p>20      A    No.</p> <p>21      Q    The -- the -- are you familiar with the concept of latency periods in cancer?</p> <p>23      A    Yes.</p> <p>24      Q    Do you know what the average latency period is for esophageal cancer?</p>	<p>Page 49</p> <p>1           MR. NIGH: Object to form.</p> <p>2           THE WITNESS: Not specifically.</p> <p>3 BY MR. TRISCHLER:</p> <p>4       Q    We talked a little bit about the Gomm -- or you talked a little bit about the Gomm and Pottegard studies yesterday. And we mentioned them again this morning. You're familiar with those papers, right?</p> <p>9       A    Yes.</p> <p>10      Q    And I think one of the things that you indicated to us was that you were critical of the observations by Gomm and Pottegard in their papers because the study durations too short; is that correct?</p> <p>15      A    Yes.</p> <p>16      Q    Basically what you -- what you said was that a study duration of -- with a study duration on the order of three, four and five years, it was simply too early to tell whether or not nitrosamines in valsartan-containing medications might have an increased risk of cancer, right? You need more time?</p> <p>23      A    Well, for a population-based study, it is short. But that doesn't mean that, you know, in some patients, a shorter onset of cancer cannot</p>
<p>1       A    Specifically for esophageal cancer, no.</p> <p>3       Q    Do you know the average latency period for stomach cancer?</p> <p>5       A    No.</p> <p>6           MR. NIGH: Object to form.</p> <p>7 BY MR. TRISCHLER:</p> <p>8       Q    Do you know the average latency period for colorectal cancer?</p> <p>10      MR. NIGH: Object to form.</p> <p>11      THE WITNESS: The latency period for cancer in general is usually around, give or take, ten years.</p> <p>14 BY MR. TRISCHLER:</p> <p>15      Q    All right. I'm asking about specific cancer types, and if you don't know, you can simply tell me you don't know.</p> <p>18      A    Right. Again, I'm not an oncologist.</p> <p>19      So no, I -- I -- the answer to your question -- the last -- the answer to your last question on stomach latency is I don't know.</p> <p>22      Q    Okay. So and if I went through the nine cancer types that you mention in your report, would you know the average latency period for any of them?</p>	<p>Page 50</p> <p>1           occur. But when I'm looking at a -- obviously, this was a population study, the ones you're mentioning.</p> <p>3 And for a population study that median of three years is short.</p> <p>5       Q    I wasn't asking you about whether there's any particular individual that might have a shorter latency period than another. I was asking you about study design.</p> <p>9           And what you told us yesterday was that a study period of four or five years, which I believe is the time frame in the Pottegard and Gomm studies is just too short, and it's too early to tell whether or not nitrosamines in valsartan-containing medications can cause an increased risk of cancer; you need a longer period of time to study that, right?</p> <p>17      A    Yes.</p> <p>18      MR. NIGH: Object to form. Hold on.</p> <p>19      Hold on. Object to form. That was asked and answered.</p> <p>21 BY MR. TRISCHLER:</p> <p>22      Q    That's what you told us yesterday, right?</p> <p>24      A    Yes.</p> <p>25      Q    Okay. And so in your opinion, how</p>

<p style="text-align: right;">Page 53</p> <p>1 long would you have to go out to find a credible      2 study that evaluates NDMA and NDEA in      3 valsartan-containing medications and whether those      4 medications lead to an increased risk of cancer?</p> <p>5 MR. NIGH: Form objection.</p> <p>6 THE WITNESS: Certainly, more than,      7 you know, five years.</p> <p>8 BY MR. TRISCHLER:</p> <p>9 Q Okay. What does that mean? Does it      10 mean six years is enough, or do you have to go to      11 like 10, 15?</p> <p>12 A Well, again, you're asking me a      13 technical question. So one has to sit down, and if      14 you're looking at different types of cancer, you      15 have to factor in the -- the different latencies of      16 all the cancers that you want to study and then make      17 sure that the follow-up period that you have in your      18 study design meets those latency periods.</p> <p>19 Q Okay. So are you familiar with a      20 paper by Nadler, N-a-d-l-e-r, entitled, "Estimating      21 Cancer Latency Times Using Weibull," W-e-i-b-u-l-l,      22 "Model"?</p> <p>23 A Doesn't ring a bell.</p> <p>24 Q Are you familiar with the Weibull      25 model?</p>	<p style="text-align: right;">Page 55</p> <p>1 average latency period in the literature. And I      2 asked if you have any basis to dispute it.</p> <p>3 MR. NIGH: Object to form.</p> <p>4 THE WITNESS: No, I have no basis to      5 dispute it or agree to it.</p> <p>6 BY MR. TRISCHLER:</p> <p>7 Q Okay. And in -- in the same paper,      8 the authors estimate the average latency period of      9 lung cancer to be 13 years. Do you have any basis      10 to dispute that?</p> <p>11 MR. NIGH: Object to form.</p> <p>12 THE WITNESS: Again, I can't agree or      13 dispute.</p> <p>14 BY MR. NIGH:</p> <p>15 Q And so if we wanted to -- if we were      16 an epidemiologist like yourself and we wanted to      17 carry out, you know, a well-designed epidemiological      18 study to evaluate whether nitrosamines in      19 valsartan-containing medications led to an increased      20 risk of stomach cancer, we'd need to carry that      21 study out for 22 years, right?</p> <p>22 MR. NIGH: Object to form.</p> <p>23 BY MR. TRISCHLER:</p> <p>24 Q If we assume that's the correct      25 latency period?</p>
<p style="text-align: right;">Page 54</p> <p>1 A Yes.</p> <p>2 Q What is it?</p> <p>3 A A Weibull model is -- I believe it's a      4 parametric statistical model.</p> <p>5 Q For estimating latency periods?</p> <p>6 A I -- again, that's a technical      7 statistical question, but I believe it could be.      It's a very general model that's used for different,      sort of, outcomes and -- and one -- I mean, it could      possibly be used for statistical modeling of latency      as well. Because it looks at time, and latency is a      time. You know, it's a function of time.</p> <p>13 Q So I'll represent to you that in      14 this -- in the Nadler paper using the Weibull model      15 to estimate cancer latency times, the authors      16 concluded that the average latency period for      17 stomach cancer is 22 years. You don't have any      18 information to dispute that, right?</p> <p>19 MR. NIGH: Object to form.</p> <p>20 THE WITNESS: I'm not going to agree      21 right now on the latency period, which is quite      22 a complex topic, based on just one paper.</p> <p>23 BY MR. TRISCHLER:</p> <p>24 Q I didn't ask you to agree to it. I      25 asked you -- I made a representation to you of the</p>	<p style="text-align: right;">Page 56</p> <p>1 MR. NIGH: Object to form.</p> <p>2 THE WITNESS: It -- it will be -- it      3 should be a study that has a very long follow      4 up. Again, I don't want to be agreeing on      5 numbers that -- that I haven't seen or from one      6 paper. But generally speaking, it needs a long      7 period of follow up.</p> <p>8 BY MR. NIGH:</p> <p>9 Q And so if we're going to be -- if      10 we're going to approach the question of whether      11 nitrosamines in valsartan-containing medications      12 lead to an increased risk of cancer, we're going to      13 make that determination based on the science, what      14 you're telling us is we just don't know at this      15 point because the -- we don't have enough time to      16 answer the question, right?</p> <p>17 MR. NIGH: Object to form.</p> <p>18 THE WITNESS: To specifically design a      19 study that looks at oral nitrosamine, it's      20 going to be a complex study. But again, my      21 report and my review was on a general causation      22 of exposure of nitrosamine -- nitrosamines and      23 cancer.</p> <p>24 BY MR. TRISCHLER:</p> <p>25 Q By the way, there are -- there are a</p>

<p style="text-align: right;">Page 57</p> <p>1 few other cancer types that are at issue in this 2 litigation, breast cancer, kidney cancer, pharyngeal 3 cancer and uterine cancer. 4 In your report, you did not observe 5 any statistically significant increased risk between 6 NDMA and NDEA exposure and breast cancer, do you? 7 A Again, I don't think a statistically 8 significant increase is the right sort of portrayal. 9 I did not include any studies, whether significant 10 or not, because they did not meet -- those types 11 studies did not meet my inclusion criteria, which -- 12 Q So you don't -- I'm sorry. I didn't 13 mean to interrupt you. 14 A Go ahead. 15 Q No. I thought you were finished. 16 A I -- sorry. I think I am finished. 17 Q I guess what I'm asking is you do not 18 intend to offer an opinion that NDMA exposure or 19 NDEA exposure will lead to an increased risk of 20 breast cancer, do you? 21 A No, because it's a not in my report, 22 and I did not cover -- cover this topic. 23 Q You do not intend to offer an opinion 24 that exposure to NDMA or NDEA lead to an increased 25 risk of kidney cancer, do you?</p>	<p style="text-align: right;">Page 59</p> <p>1 THE WITNESS: Can we take a break now 2 if you have more information to cover, but if 3 you're reaching the end, maybe we can continue. 4 Either option is okay. 5 MR. TRISCHLER: Well, I'm -- I'm 6 reaching my end, but there will be another 7 examiner, at least one other examiner that I'm 8 aware of. So we can take a break. 9 THE WITNESS: No, I understand. I 10 meant just your section. 11 MR. TRISCHLER: Yeah. You won't -- 12 you won't -- we can take a break whenever you 13 want. It won't mess me up, so you're in 14 control of that. So you tell me. 15 THE WITNESS: I mean, if you have 16 another 5, 10 minutes, we can go -- you know, 17 we can continue. If it's longer, I'd like to 18 take a break. 19 MR. TRISCHLER: No, I don't have 20 any -- in fact, I think -- I think I'm probably 21 finished, so I will pass the witness. If you 22 want to take a break now then, or, you know, 23 I'll leave that up to you and Daniel. 24 THE WITNESS: Sure. Can I take a 25 break, everyone?</p>
<p style="text-align: right;">Page 58</p> <p>1 A No. 2 Q You do not intend to offer an opinion 3 that exposure to NDMA or NDEA lead to an increased 4 risk of pharyngeal cancer, do you? 5 A Well, I do have -- I do have oral 6 cancers including larynx, I believe, in my report. 7 So pharyngeal, specifically no, but I do talk about 8 oral cancers, in general, including the larynx. And 9 so, again, I do make an opinion on oral cancers in 10 general. It does not specifically say pharyngeal. 11 Q Okay. But when you say "oral 12 cancers," the only one I'm aware of that arguably 13 constitute oral, at least as I understand the 14 anatomy, is esophageal? 15 A No. Oral cancers can also include the 16 mouth, the esophagus and also the pharynx and the 17 larynx. So I do have a section in my report on 18 pharynx, larynx and the esophagus, which I combine 19 into head and neck cancers. 20 Q Okay. Do you intend to offer an opinion that exposure to NDMA or NDEA increase the risk of uterine cancer? 21 A No. 22 THE WITNESS: Can I interject? 23 MR. TRISCHLER: Yes.</p>	<p style="text-align: right;">Page 60</p> <p>1 MR. NIGH: Yeah, let's take a 2 ten-minute break. 3 THE VIDEOGRAPHER: The time is now 4 9:34. This ends Media Unit Number 1. We're 5 going off the record. 6 (Whereupon, a short break was taken.) 7 THE VIDEOGRAPHER: The time is now 8 9:49 in this begins Media Unit Number 2 we're 9 back on the record. 10 EXAMINATION BY MS. KAPKE: 11 Q Good morning, Dr. Etminan. My name's 12 Kara Kapke, and I just have a few short questions. 13 You talked about how the -- one of the 14 questions you were answering was whether NDMA or 15 NDEA exposure over time increases the risk of 16 cancer. Can you quantify the duration of time that 17 you're talking about? 18 MR. NIGH: Form objection. 19 THE WITNESS: Different studies have 20 different durations. So I can't really give 21 you a specific answer. 22 I believe that -- in the range from 23 maybe three or four years up to the study -- 24 the occupational study, I believe had a 35 or 25 40-year follow up, so it is a big range.</p>

	Page 61		Page 63
1	BY MS. KAPKE:	1	Similar type of question, but what does "systemic"
2	Q So given that -- your answer, is it	2	mean to you?
3	fair to say that a person would need to take NDMA or	3	A Systemic means that NDMA that's
4	NDEA containing valsartan for at least three years	4	available in -- in the body, and it's absorbed and
5	before they had an increased risk of cancer?	5	available in the body to, you know, all the organs.
6	MR. NIGH: Object to form.	6	All the organs are subject to some level of NDMA.
7	THE WITNESS: No, I -- I wouldn't say	7	Q And have you ever put a quantification
8	that because, again, every -- it's a very --	8	of the dose or the duration that it takes to reach
9	latency to cancer is very individualized. And	9	that systemic exposure?
10	those are median follow-ups -- you -- which	10	MR. NIGH: Form objection.
11	means that you have -- at each end -- you have	11	THE WITNESS: Can you repeat the
12	a lower end and a higher end. So I can't -- I	12	question, please?
13	don't really want to make that specific sort of	13	MS. KAPKE: Can the court reporter
14	statement.	14	read it back?
15	BY MS. KAPKE:	15	(Whereupon, the testimony was read
16	Q What are you willing to say, to a	16	back as requested.)
17	reasonable degree of scientific certainty, that is	17	THE WITNESS: No.
18	the -- minimum amount of time that a person would	18	MS. KAPKE: Thank you very much,
19	need to have taken valsartan that contained NDMA or	19	Dr. Etmian. I'll pass the witness.
20	NDEA before they are subject to an increased risk of	20	THE WITNESS: Thank you.
21	cancer?	21	EXAMINATION BY MR. FOWLER:
22	MR. NIGH: Form objection.	22	Q Good day, Dr. Etmian.
23	THE WITNESS: Again, given that I	23	You may have seen me briefly
24	looked at general causation, I can say that	24	yesterday. Let me just reintroduce myself. I'm
25	exposure to NDMA and NDMA valsartan increases	25	Steve Fowler with the law firm Greenberg Traurig,
	Page 62		Page 64
1	the risk of cancer over time. I don't have any	1	and we represent the Teva defendants. I've got some
2	specific data to, sort of, give you a specific	2	additional questions for you.
3	number right now.	3	But let me just start very quickly.
4	BY MS. KAPKE:	4	Am I correct that in -- in your research, nor in
5	Q You would agree with me that a person	5	your report, did you attempt to determine whether
6	who took a single pill for -- you know, one -- one	6	the levels of NDMA and NDEA in the valsartan tablets
7	pill of valsartan that contained NDMA or NDEA would	7	at issue here, whether that level poses an increased
8	not have an increased risk of cancer, correct?	8	risk of cancer?
9	A One pill over what period?	9	MR. NIGH: Object to form.
10	Q One day.	10	THE WITNESS: Specifically looking at
11	A No.	11	the levels, no. I made general sort of
12	Q You don't agree or you do agree with	12	analogies based on the NDMA levels in the
13	that?	13	different manufacturers with respect to the --
14	A I agree with you that taking one pill	14	the sort of a dose response relations that I
15	of valsartan for one day does not increase the risk	15	found from the occupational and epi studies.
16	of cancer.	16	BY MR. FOWLER:
17	Q What about 30 days, so 30 days' worth	17	Q I see.
18	of pills?	18	MR. FOWLER: By the way, Mr. Nigh, is
19	A 30 days, probably not as well.	19	there any reason that you're not on camera as a
20	Q I'm going to push it out. How about	20	-- as a speaking role in this deposition?
21	90 days?	21	MR. NIGH: We have had many of us that
22	A Again, less likely.	22	haven't been on camera on speaking objections,
23	Q Another way you -- you framed the	23	you know, the people that are handling the
24	question that you are evaluating was whether	24	depositions. So I have seen it on multiple
25	systemic exposure to NDMA could cause cancer.	25	occasions from attorneys throughout this

<p>1 litigation. So I'm not sure why at this point 2 you're raising this issue, almost nine hours 3 into the deposition.</p> <p>4 MR. FOWLER: Well, you were initially 5 yesterday, but if you're not comfortable, 6 that's -- that's fine. I'll -- I'll leave it 7 alone.</p> <p>8 BY MR. FOWLER:</p> <p>9 Q Dr. Etminan, let me shift gears here 10 and go back to yesterday. I think your CV was 11 marked as Exhibit 2. I'd like to -- to put your CV 12 up.</p> <p>13 MR. FOWLER: I don't know, Justin, if 14 you can do that. I think it was Number 2.</p> <p>15 BY MR. FOWLER:</p> <p>16 Q Are you with me, sir?</p> <p>17 A Yes.</p> <p>18 Q Directing your attention to the top, 19 you see the date of May 2021. Is that the date that 20 you revised or updated your CV?</p> <p>21 A Yes.</p> <p>22 Q And when you did that, did you review 23 your entire CV for accuracy and any changes that 24 needed to be made?</p> <p>25 A To the best of my ability, yes.</p>	<p>Page 65</p> <p>1 Q And you are -- your title as associate 2 professor in the department of ophthalmology is not 3 because you had any education, training or 4 experience in ophthalmology before changing to that 5 department, correct?</p> <p>6 A Correct. So the department of 7 ophthalmology has clinical faculty who are 8 ophthalmologists. Then they have -- and then they 9 have research faculty, and I'm part of the research 10 faculty.</p> <p>11 Q Yes, sir.</p> <p>12 A And -- and prior to that, you were in 13 the department of pediatrics; is that correct?</p> <p>14 Q Yes. Yes.</p> <p>15 Q And you are no more a pediatrician 16 than you are an ophthalmologist, right?</p> <p>17 A Correct.</p> <p>18 Q You simply acquire the title when you 19 are transferred from one department to another?</p> <p>20 A Well, the title doesn't -- I mean, 21 title is assistant professor or associate professor, 22 and then the department changes, right? So I'm not 23 sure what you mean by "title."</p> <p>24 Q Okay. Well, before, you were an 25 associate professor in the department of pediatrics</p>
<p>1 Q And you would -- you believe 2 everything that you've stated on your CV is true and 3 accurate to the best of your knowledge?</p> <p>4 A Yes.</p> <p>5 Q Do you recall what changes that you 6 made or additions in May of 2021? Was it simply 7 publications, or was it something else?</p> <p>8 A No. It's usually just adding new 9 publications.</p> <p>10 Q Yes, sir.</p> <p>11 Now, presently, according to your CV, 12 you are an associate member in neurology, department 13 of medicine; and associate member, department of 14 anesthesiology, pharmacology and therapeutics.</p> <p>15 What -- what responsibilities, if any, 16 do you have in the department of neurology, for 17 example?</p> <p>18 A So as an associate member, my 19 responsibilities are far fewer than my -- my own 20 department, which is ophthalmology. For -- for 21 neurology, I'm a reviewer for the journal -- 22 movement disorder and epidemiology reviewer for the 23 journal "Movement Disorder" where the editor in 24 chief happens to be also in the department of 25 neurology. So that's -- that's the connection.</p>	<p>Page 66</p> <p>1 at one point, the department of respiratory medicine 2 at another point, correct?</p> <p>3 A Correct.</p> <p>4 Q But you have no medical training in 5 either of those specialties, right?</p> <p>6 A Correct.</p> <p>7 Q And you call yourself -- or I've seen 8 you call yourself an adjunct position in the 9 department of pharmacology. Do you still contend 10 that's your position?</p> <p>11 MR. NIGH: Form objection.</p> <p>12 You can answer.</p> <p>13 THE WITNESS: In the department of 14 pharmacology -- anesthesiology, pharmacology 15 and therapeutics, yes.</p> <p>16 BY MR. FOWLER:</p> <p>17 Q Just to be clear, my question is, do 18 you still believe that you have an adjunct position 19 in the department of pharmacology at UBC?</p> <p>20 A Yes.</p> <p>21 MR. NIGH: Form objection.</p> <p>22 BY MR. FOWLER:</p> <p>23 Q And why do you call it adjunct? Are 24 you teaching classes in the department of 25 pharmacology?</p>

	Page 69		Page 71
1      A     I -- I -- actually used to teach 2    classes until last year. And I have some other 3    collaborations with some of the faculty there, so 4    that's why I do have the adjunct position.		1           Your master's, your MSC from 2    University of Toronto, is it your contention that 3    that was specifically in clinical epidemiology, or 4    is that, again, your choice of words to describe it?	
5      Q     I see. 6           Let's go to the second page of your 7    CV, please. Sir, you indicate having received your 8    PharmD at Idaho State University, and you note 9    clinical pharmacology next to it. Are you with me?		5      A     It was in clinical epidemiology. 6      Q     And that was the degree that was 7    specifically conferred, sir?	
10     A     Yes. 11     Q     The PharmD program at Iowa [sic] State 12    does not have a separate program or separate degree 13    or track for clinical pharmacology, does it?		8      A     I believe so. 9      Q     And is it your contention that you 10    were in a postdoc fellowship specifically in 11    pharmacoepidemiology at McGill as opposed to a 12    postdoc fellow in pharmacy?	
14     A     Idaho State. No. I put clinical 15    pharmacology because many don't really understand or 16    know who are non-pharmacists what a PharmD entails. 17    And so I put clinical pharmacology just to explain 18    what the degree entails, not specifically on a 19    specific clinical pharmacology program.		13     A     No, it was specifically 14    pharmacoepidemiology. 15     MR. FOWLER: You can take that down.	
20     Q     Right. So you're not holding yourself 21    out as having received some special PharmD degree in 22    clinical pharmacology. Those are just the words you 23    self-selected to describe your degree, correct?		16     Thank you. 17     BY MR. FOWLER:	
24     A     Correct. 25     Q     And likewise -- and also, sir, you		18     Q     Now, sir, when you conduct research 19    projects when you seek to determine what subject 20    you're going to investigate, you testified yesterday 21    that you look to various areas defined -- "emerging 22    issues," perhaps, that you wanted to investigate. 23    Is that a fair characterization?	
	Page 70	24     A     Yes. 25     Q     And you mentioned media as one source	Page 72
1    testified yesterday you started your PharmD degree 2    at University of British Columbia, but then you 3    testified that you left. You, kind of, mentioned a 4    couple of reasons. 5           One of them, you indicated the program 6    was shorter at Iowa State. You would get your 7    degree -- at Idaho State. You would get your degree 8    faster. Is that your testimony, sir? 9      A     I don't recall exactly what I said 10    yesterday, but I could clarify. 11      I believe I did say that the UBC 12    pharmacy program was clinically oriented, and I 13    wanted to pursue a research career. So I -- I 14    didn't see a fit there. And possibly, it was -- it 15    was a more, perhaps, busier, if you will, stringent 16    program that I didn't think I would really benefit 17    from. So that's why I completed my degree at Idaho. 18      Q     And there's not another reason that 19    you left UBC that's a nonacademic reason, sir? 20     A     No. 21     Q     And the Idaho State University degree 22    is four years just as UBC, correct? 23     A     It was a two-year -- two years post 24    baccalaureate program. 25     Q     I see.		1    as well as health regulatory agencies, right? 2      A     Correct. 3      Q     But you also purposefully do studies 4    with an eye towards assisting in litigation, 5    correct, sir? 6      A     I -- I wouldn't say that -- that's 7    something I do systematically, no. 8      Q     Doctor, have -- have you testified 9    that you have contacted lawyers in the course of 10    starting a study because you believe that that was 11    going to be useful to them in litigation? 12     MR. NIGH: Form objection. 13     THE WITNESS: There could have been 14    one occasion where I was in the process of 15    doing the same sort of study, and a lawyer may 16    have approached me at, sort of, the same 17    timing. 18     BY MR. FOWLER: 19     Q     I see. And you have done that with 20    the Mirena IUD litigation? 21     A     Yes. 22     Q     Bear with me, sir. I apologize. 23     And you have never contacted a drug 24    company to offer any benefit of your study or your 25    expertise, only plaintiff lawyers, correct?	

	Page 73		Page 75
1	MR. NIGH: Object to form.	1	same since 2017, sir?
2	THE WITNESS: Again, I -- I am not --	2	A Since 2017, I would say it -- I would
3	you're sort of portraying it as I'm contacting	3	say it may have increased.
4	lawyers. The Mirena situation, as I mentioned	4	Q And other than the matter for
5	to you, was a situation where I was starting to	5	ranitidine that you were instructed not to discuss
6	question because it was in the media, and I was	6	further yesterday, do you have other pending
7	approached, sort of, in the same time by -- by	7	litigation matters that you are involved in? I'm
8	-- by a lawyer.	8	not asking what at the moment, sir.
9	With respect to approaching	9	A You just want to know if I am involved
10	manufacturers, no, I have not. But I know that	10	in other litigation?
11	my research has been used by them in their	11	Q Yes, sir.
12	defense.	12	A Yes.
13	BY MR. FOWLER:	13	Q Okay. About how many? If this is one
14	Q You have never been retained by a	14	and ranitidine is two, how many others?
15	pharmaceutical company as an expert in any matter;	15	A I just have to think about it. I have
16	isn't that correct?	16	to count them. When you say "litigation," do you
17	A No. I -- probably because a lot of my	17	mean just the -- sort of the -- the topic area or
18	studies where I show an increase in risk with a	18	how many different perhaps groups or lawyers?
19	drug, you know, they -- they don't, probably, want	19	Q What would be the best way for you to
20	to retain me. So that's why -- that's one of the	20	describe how many other topics that you are working
21	reasons I believe I have not been retained.	21	with lawyers on presently other than the two I have
22	Q And they have never -- well, strike	22	mentioned?
23	that.	23	A I would say two other topics.
24	You've only been retained by counsel	24	Q Okay. Do you have any other
25	for plaintiff in litigations involving	25	depositions scheduled, sir?
	Page 74		Page 76
1	pharmaceuticals; isn't that correct?	1	A No.
2	A Yes.	2	Q Prior to your deposition, counsel for
3	Q And you withdrew from a case where you	3	the plaintiffs provided some documents to the
4	were retained by plaintiffs' counsel, you said	4	defendants, and what I'd like to do is just mark
5	yesterday it was because of the science. But isn't	5	that entire set of documents as an exhibit. Then
6	the reason that you withdrew from Copley v. Bayer	6	there may be some that I pull out.
7	was because you weren't happy with your -- with the	7	MR. FOWLER: Can we do that, Steve?
8	lawyer you were working with?	8	Can we mark that entire production as -- as the
9	A That could have been one of the	9	next exhibit?
10	reasons as well.	10	MR. HARKINS: That will be marked as
11	Q Sir, do you recall testifying that as	11	Exhibit 28. It may take a moment to upload.
12	a consultant for plaintiffs in the Risperdal	12	MR. FOWLER: Thank you.
13	litigation that you were paid approximately	13	THE WITNESS: Can I take a two-minute
14	\$200,000?	14	break if you don't mind?
15	A I don't -- that number, I don't recall	15	MR. FOWLER: Absolutely, Doctor.
16	that number. I'm not sure if that's an accurate	16	You're in charge. Off the record.
17	number.	17	THE VIDEOGRAPHER: The time is now
18	Q Have you testified that your annual	18	10:12. We're going off the record.
19	lawyer consulting income is 20 to \$30,000 a year, at	19	(Whereupon, a short break was taken.)
20	least in 2017, sir?	20	(Whereupon, Exhibit 28 was marked for
21	A That -- I may have mentioned that as	21	Identification.)
22	an approximation, but -- but I don't really know	22	THE VIDEOGRAPHER: The time is now
23	what that \$200,000 figure is coming from.	23	10:15. We're back on the record.
24	Q Have -- has your consulting with	24	BY MR. FOWLER:
25	plaintiff lawyers increased, decreased or stayed the	25	Q Doctor, I would submit that Exhibit 28

Page 77	Page 79
<p>1 is a composite exhibit of documents that were      2 provided by counsel for plaintiffs to the defense      3 counsel prior to your dep.</p> <p>4 Did you have any role in deciding, for      5 example, which articles would be included in that      6 set of documents?</p> <p>7 MR. NIGH: Form objection.</p> <p>8 THE WITNESS: Yes. So I included      9 documents that weighted heavily in my report      10 and the opinion presented in my report. So all      11 the major studies that I relied on, my search      12 strategy are all included.</p> <p>13 BY MR. FOWLER:</p> <p>14 Q And where did you get copies of those      15 articles?</p> <p>16 A I ascertained the articles through the      17 UBC library, electronic library.</p> <p>18 Q Yes, sir.</p> <p>19 MR. FOWLER: Let's mark as Exhibit 29      20 the search criteria documents, if I can refer      21 to those as such. Are you with me, Doctor? Do      22 you know what I mean?</p> <p>23 (Whereupon, Exhibit 29 was marked for      24 Identification.)</p> <p>25 THE WITNESS: Which exhibit is this?</p>	<p>1 was just waiting for the doctor.      2 MR. FOWLER: Okay. Because I'm not      3 seeing it. There we go.</p> <p>4 BY MR. FOWLER:</p> <p>5 Q Okay, sir. So let's first orient      6 ourselves to this. Can we scroll to the second      7 page? Do you see we have bladder cancer there,      8 Doctor, in the next page?</p> <p>9 A Yes.</p> <p>10 Q And brain -- brain tumors.</p> <p>11 You're not offering any opinion that      12 NDMA at the levels contained in the valsartan pills      13 caused brain tumors, are you?</p> <p>14 A No, but I --</p> <p>15 Q Let's go to the top the first page.</p> <p>16 MR. NIGH: Hold on. Hold on. You      17 interrupted his answer. You gotta let him      18 finish.</p> <p>19 MR. FOWLER: I'm sorry. He answered      20 no.</p> <p>21 MR. NIGH: No. No. No. He was not      22 finished. He said, "No, but," and you just      23 spoke up. You gotta let him finish.</p> <p>24 BY MR. FOWLER:</p> <p>25 Q I'm sorry, Doctor. Go ahead.</p>
Page 78	Page 80
<p>1 MR. FOWLER: It will be 29. Bear with      2 me. It's going to come up.</p> <p>3 BY MR. FOWLER:</p> <p>4 Q And as it's posting, Doctor, you would      5 agree that you attempted to set forth in the      6 documents we're going to look at, your quote/unquote      7 search methodology for selecting documents to review      8 for your report; is that a fair statement?</p> <p>9 A Yes.</p> <p>10 Q And other than the searches that we're      11 going to look at here that are described for the      12 various cancers, was there any other medical      13 database that you reviewed or other research you did      14 to select articles other than what was the product      15 of this search criteria that we're going to look at      16 here on Exhibit 29?</p> <p>17 A So as I mention in my report, I also      18 looked at -- I used Google Scholar using the same      19 terminologies. And I found pertinent articles      20 through reviewing the articles that I -- I had found      21 in case they were not listed in my search.</p> <p>22 MR. FOWLER: How are we doing on      23 Exhibit 29?</p> <p>24 THE WITNESS: I'm looking at it.</p> <p>25 THE VIDEOGRAPHER: Yes, it's up. I</p>	<p>1 A Because I did a systematic review of      2 the literature of NDMA with all types of cancer, I      3 included all types of cancer in my original search.      4 And then I -- and after I looked at the evidence and      5 synthesized the evidence, then I chose, depending on      6 the amount of data that I had, which cancers to      7 include and which not to include.</p> <p>8 So, again, to be thorough and      9 systematic, I did include all types of cancers in my      10 search. But depending on the type of data and      11 whether the data met my inclusion criteria, then I      12 went ahead and mentioned in the report or included      13 data for that in the report.</p> <p>14 Q I see.</p> <p>15 MR. FOWLER: Let's go to Page 1 of      16 Exhibit 19 -- I mean, Exhibit 29. Now -- thank      17 you.</p> <p>18 BY MR. FOWLER:</p> <p>19 Q What we're looking at here, Doctor,      20 and -- is this a document that you created, or is      21 it -- is it a printout, if you will, from your      22 search engine?</p> <p>23 A It's a printout. It's an electronic      24 output of the search that I did.</p> <p>25 Q Okay. Thank you. And what does the</p>

<p style="text-align: right;">Page 81</p> <p>1 EXP mean?</p> <p>2 A It means expanded.</p> <p>3 Q And what -- what do you understand</p> <p>4 expanded to mean?</p> <p>5 A So that -- that -- basically, it looks</p> <p>6 at all terminologies that would be related to</p> <p>7 nitrites, all different chemical -- chemicals that</p> <p>8 may be tagged in the database as nitrites just to</p> <p>9 be -- to make sure that nothing is missed.</p> <p>10 Q So do I understand, in Line 1, that</p> <p>11 your search would have included not only NDMA, but</p> <p>12 any nitrosamines?</p> <p>13 A Yes, because NDMA by itself does not</p> <p>14 have --</p> <p>15 THE COURT REPORTER: I'm sorry. Does</p> <p>16 not have a what?</p> <p>17 THE WITNESS: They don't have a MeSH</p> <p>18 M-e-S-H, which stands for medical subject</p> <p>19 heading. I believe it's -- I believe it stands</p> <p>20 for medical subject heading.</p> <p>21 Anyway, it's the -- it's the key</p> <p>22 medical terminologies that are tagged by the</p> <p>23 National Library of Medicine, PubMed. So NDMA</p> <p>24 does not have a specific tag, but it's tagged</p> <p>25 under "nitrosamines."</p>	<p style="text-align: right;">Page 83</p> <p>1 BY MR. FOWLER:</p> <p>2 Q Correct, Doctor?</p> <p>3 A Yes.</p> <p>4 Q And same question here for the brain</p> <p>5 tumors, it's your contention that you reviewed 64</p> <p>6 articles looking for NDMA or NDEA?</p> <p>7 A Yes.</p> <p>8 MR. FOWLER: Next -- next page.</p> <p>9 BY MR. FOWLER:</p> <p>10 Q And for breast cancer, is it your</p> <p>11 contention you reviewed the 115 articles that are on</p> <p>12 line 16 looking for NDMA and NDEA?</p> <p>13 A Yes.</p> <p>14 MR. FOWLER: Next page.</p> <p>15 BY MR. FOWLER:</p> <p>16 Q You contend there are 130 articles</p> <p>17 that you looked through here?</p> <p>18 A Yes.</p> <p>19 Q And you did this all -- let me ask it</p> <p>20 differently.</p> <p>21 Did you use any kind of electronic</p> <p>22 search method as you're reviewing these several</p> <p>23 hundred articles, sir?</p> <p>24 A No. I just went through them, read</p> <p>25 the title of the article, read the abstract and then</p>
<p style="text-align: right;">Page 82</p> <p>1 So, again, to be ensuring that I'm not</p> <p>2 missing anything, I started the search with</p> <p>3 nitrosamine, which is the bigger umbrella term.</p> <p>4 But then I restricted at the end my inclusion</p> <p>5 for studies that -- specifically with NDMA.</p> <p>6 MR. FOWLER: Let's go to the next</p> <p>7 page.</p> <p>8 BY MR. FOWLER:</p> <p>9 Q So for bladder cancer, sir, as I read</p> <p>10 this, again, your 120 articles that come out of --</p> <p>11 at Line 8, include anything to do with nitrosamines</p> <p>12 or nitrites or NDMA, right?</p> <p>13 A Right. So then what I -- what I did</p> <p>14 was, go through the 120 articles, which would have</p> <p>15 been animal studies where they could have looked at</p> <p>16 NDMA, NDEA or other nitrosamines. But then I only</p> <p>17 selected those that met my inclusion criteria, which</p> <p>18 is specifically looking at nitrosamines, NDMA or</p> <p>19 NDEA.</p> <p>20 MR. FOWLER: Next page, please.</p> <p>21 BY MR. FOWLER:</p> <p>22 Q So there are 120 articles you said you</p> <p>23 reviewed there, correct?</p> <p>24 MR. NIGH: Form objection.</p> <p>25</p>	<p style="text-align: right;">Page 84</p> <p>1 decided whether they would meet my inclusion</p> <p>2 criteria or not.</p> <p>3 Q And with regard to your inclusion</p> <p>4 criteria, you mentioned yesterday that it was</p> <p>5 important to you that the -- if NDMA is mentioned,</p> <p>6 that it be quantified when it's mentioned. Is that</p> <p>7 an accurate statement of your testimony yesterday,</p> <p>8 sir?</p> <p>9 A Yes.</p> <p>10 Q It was important to you that there be</p> <p>11 a measure of NDMA, not just a broad reference to</p> <p>12 NDMA. Does that make sense to you?</p> <p>13 A Yes.</p> <p>14 Q Okay.</p> <p>15 MR. FOWLER: Next page, please.</p> <p>16 BY MR. FOWLER:</p> <p>17 Q And Doctor, of course, you -- you</p> <p>18 billed for all your time reviewing these 6, 7, 800</p> <p>19 articles, didn't you?</p> <p>20 A It was part of my work that I bill for</p> <p>21 it, yes.</p> <p>22 Q And you would have reviewed all of</p> <p>23 these before you put pen to paper for your report?</p> <p>24 A I'm not sure. I mean, either before</p> <p>25 or maybe during the time I was writing, perhaps, say</p>

<p style="text-align: right;">Page 85</p> <p>1 the introduction of the report, but definitely prior 2 to the time where I sort of formed -- you know, 3 formulated my opinion on the different types of 4 cancer.</p> <p>5 Q And is it your testimony that you 6 can't go to PubMed and put in "NDMA" and "cancer," 7 that it's not going to give you any results? Is 8 that what you're saying?</p> <p>9 MR. NIGH: Form objection.</p> <p>10 THE WITNESS: It will give the 11 results, but -- but it may not give you 12 accurate results. There could be studies that 13 may not be included in that search strategy.</p> <p>14 BY MR. FOWLER:</p> <p>15 Q So you didn't do it?</p> <p>16 MR. NIGH: Object to form.</p> <p>17 THE WITNESS: No, because, again, I 18 wanted to be more thorough and do a -- do a 19 more systematic approach.</p> <p>20 BY MR. FOWLER:</p> <p>21 Q Okay. Okay. And when -- let's say 22 here in esophageal cancer, in those 19 articles, if 23 you came across one or two that looked good to you, 24 would you stop there, or would you look through all 25 19?</p>	<p style="text-align: right;">Page 87</p> <p>1 Through what? You would get it -- you would 2 get it through what?</p> <p>3 THE WITNESS: Interlibrary loan 4 service.</p> <p>5 BY MR. FOWLER:</p> <p>6 Q And, Doctor, for each article that you 7 contend met your inclusion criteria -- let's stick 8 with esophageal cancer here -- did you cite all of 9 those articles in your report?</p> <p>10 A No, I only cited, again, the articles 11 that met my inclusion criteria.</p> <p>12 Q Well, that was my question, sir. 13 Let's say esophageal cancer, there 14 were 9 out of the 19 that met your inclusion 15 criteria. Would you have cited all 9, or did you 16 have another cut as to what you were going to cite?</p> <p>17 A No. If -- if they met the inclusion 18 criteria, I mentioned them.</p> <p>19 THE COURT REPORTER: Counsel, can we 20 go off the record for one second?</p> <p>21 MR. FOWLER: Certainly.</p> <p>22 THE VIDEOGRAPHER: The time is now 23 10:29. We're going off the record. (Whereupon, a short break was taken.)</p> <p>25 THE VIDEOGRAPHER: The time is now</p>
<p style="text-align: right;">Page 86</p> <p>1 A I'm not sure what you mean by "looked 2 good." So I went through the 19, and all from -- 3 from the denominator of the 19 articles, whichever 4 met my inclusion criteria was reviewed.</p> <p>5 Q Okay. And did you electronically 6 slide those over to some file on your computer? Did 7 you print them? What did you do with it once you 8 identified an article?</p> <p>9 A I -- I tried to look at the -- or find 10 the PDF versions so I could read them, and then I 11 would -- I saved them in files under different, you 12 know, sort of cancers.</p> <p>13 Q I see.</p> <p>14 And what if it -- let me start that 15 again.</p> <p>16 Did you have to purchase any of the 17 articles that came up?</p> <p>18 A No.</p> <p>19 Q If -- if, for example, your search in 20 PubMed came up with an article that required 21 purchase, did you just move on to the next article?</p> <p>22 A No. I would not leave important data 23 because it could not be purchased. I would try to 24 get it through --</p> <p>25 THE COURT REPORTER: Through what?</p>	<p style="text-align: right;">Page 88</p> <p>1 10:29. We're back on the record.</p> <p>2 BY MR. FOWLER:</p> <p>3 Q Doctor, do you recall yesterday when 4 we were talking about your report and that Table 1 5 on Page 15, you testified that you determined the -- 6 the level of an unmeasured confounder that would be 7 necessary to change the relative risk reported for 8 an individual cancer? Did I get that right?</p> <p>9 A Yes.</p> <p>10 Q And you used this E-value methodology 11 that you referred to in your report, right?</p> <p>12 A Yes.</p> <p>13 Q And with regard to the E-value 14 methodology, do I recall your testimony correctly 15 that the E-valued methodology can't be applied if 16 there's more than one unmeasured confounder?</p> <p>17 A Yes.</p> <p>18 Q And so if -- in Table 1, if there was 19 more than one unmeasured confounder amongst, let's 20 say, the Hidajat study that you pulled from, this 21 table would be moot, correct?</p> <p>22 MR. NIGH: Form objection.</p> <p>23 THE WITNESS: If there was a true 24 unmeasured confounder, and we talked a lot 25 about this topic yesterday, then this -- again,</p>

<p>1      this method is only designed to look at one.</p> <p>2 BY MR. FOWLER:</p> <p>3      Q     Yes, sir. And you would consider that</p> <p>4 a limitation of the E-value methodology, sir?</p> <p>5      A     Yes.</p> <p>6      Q     Okay. Are you aware of other</p> <p>7 limitations to using an E-value methodology?</p> <p>8      A     The E-value methodology, like any</p> <p>9 epidemiologic tool, has -- or carries a number of</p> <p>10 assumptions. So, yes, it does have some assumptions</p> <p>11 built into it. But I think that overall, it is a</p> <p>12 widely accepted methodology.</p> <p>13     Q     Okay. Thank you. I think that was an</p> <p>14 answer to a different question. Let me ask my</p> <p>15 question. Listen carefully, please.</p> <p>16     Are you aware of any limitations to</p> <p>17 using the E-value methodology, yes or no, sir?</p> <p>18     MR. NIGH: Form objection.</p> <p>19     THE WITNESS: What do you mean by --</p> <p>20     MR. NIGH: Hold on. Hold on. Form</p> <p>21 objection and argumentative.</p> <p>22     You can answer.</p> <p>23     THE WITNESS: Can you -- can you</p> <p>24 clarify what you mean by "limitations"? One</p> <p>25 limitation we just agreed on is that it only</p>	<p>Page 89</p> <p>1      BY MR. FOWLER:</p> <p>2      Q     Are you aware of any articles critical</p> <p>3 of applying the E-value methodology?</p> <p>4      A     There have been articles talking about</p> <p>5 its limitations, yes.</p> <p>6      Q     And did you review those prior to</p> <p>7 applying the E-value methodology here to make sure</p> <p>8 it was a good fit?</p> <p>9      A     No. Because again, it is an accepted</p> <p>10 methodology used despite -- I mean, limitation is</p> <p>11 a -- is a very complex term. There could be</p> <p>12 limitations to a methodology, but it's still -- the</p> <p>13 limitations do not outweigh its strengths. And then</p> <p>14 there are limitations where you should not really</p> <p>15 use a specific approach.</p> <p>16     In this case, there are limitations,</p> <p>17 but I think that if -- the strengths of the</p> <p>18 methodology outweighs its limitations. And that's</p> <p>19 why it's widely used as one way to assimilate what</p> <p>20 would happen to the effect size in the absence of an</p> <p>21 unmeasured confounder.</p> <p>22     Q     And, Doctor, for each of the cancers</p> <p>23 in your Table 1 where you drew the -- the -- let me</p> <p>24 start that again.</p> <p>25     For each of the cancers listed in</p>
<p>Page 90</p> <p>1      looks at -- it can only quantify one unmeasured</p> <p>2 confounder.</p> <p>3 BY MR. FOWLER:</p> <p>4      Q     Okay.</p> <p>5      A     What -- what -- what other</p> <p>6 limitations? Can you -- if you could just elaborate</p> <p>7 on that wording.</p> <p>8      Q     Well, that's exactly what I'm asking</p> <p>9 you, sir.</p> <p>10     You expressed limitations about all</p> <p>11 sorts of studies yesterday, and I'm asking about</p> <p>12 this methodology. You know what the term</p> <p>13 "limitations" means, right, sir?</p> <p>14     A     Yes.</p> <p>15     Q     Okay. What other limitations -- and</p> <p>16 if you don't know, that's fine. Are there other</p> <p>17 limitations of the E-value methodology?</p> <p>18     MR. NIGH: Form objection.</p> <p>19     THE WITNESS: Again, one limitation is</p> <p>20 what we spoke about. The other limitation is</p> <p>21 that the unmeasured confounder has to satisfy a</p> <p>22 couple of other sort of criteria for the -- for</p> <p>23 the E-value to work, but that's just like any</p> <p>24 statistical model that is -- are based on</p> <p>25 assumptions.</p>	<p>Page 92</p> <p>1      Table 1 where you have attempted to apply the</p> <p>2 E-value methodology, if there is an unmeasured</p> <p>3 confounder for any one or all of those cancers, your</p> <p>4 conclusions from Table 1 would be null and void;</p> <p>5 they would be moot, correct?</p> <p>6      A     No. That's not what Table 1 means.</p> <p>7      Q     Table 1, the magnitude of hazard ratio</p> <p>8 on your right-hand column is derived using the</p> <p>9 E-value methodology, correct?</p> <p>10     A     It's the magnitude of the hazard ratio</p> <p>11 of the unmeasured confounder necessary to make the</p> <p>12 hazard ratio on the left null, so for the first</p> <p>13 cancer, for it to go from 1.72 to 1.0.</p> <p>14     Q     Yes, sir. Thank you.</p> <p>15     And if that stomach cancer there is a</p> <p>16 second unmeasured confounder that you would not be</p> <p>17 able to calculate -- strike that -- you would not be</p> <p>18 able to apply the E-value methodology. I thought we</p> <p>19 established that; am I right?</p> <p>20     A     Correct.</p> <p>21     MR. NIGH: Form objection.</p> <p>22 BY MR. FOWLER:</p> <p>23     Q     Okay.</p> <p>24     THE COURT REPORTER: Counsel, I'm</p> <p>25 sorry. Can we just go off the record for one</p>

	Page 93		Page 95
1	more second?	1	like to clarify that endogenous -- endogenous NDMA
2	MR. FOWLER: Sure.	2	or nitrosamines or NDMA, nitroso compounds in
3	THE VIDEOGRAPHER: The time is now	3	general, I mean, they are already in the body. But
4	10:36. This ends Media Unit Number 2. We're	4	they have -- they have been -- they got into the
5	going off the record.	5	body from the outside, from the environment, from
6	(Whereupon, a short break was taken.)	6	our food.
7	THE VIDEOGRAPHER: The time is now	7	So now that I think about it again, I
8	10:37. This begins Media Unit Number 3. We're	8	believe both exogenous and endogenous may take time
9	back on the record.	9	for -- you know, for their effect to take place with
10	BY MR. FOWLER:	10	respect to cancer.
11	Q Doctor, from the Hidajat study on the	11	I think the reason I said what I said
12	rubber workers, you agree that they were exposed to	12	yesterday is it was in reference to the Jakszyn
13	multiple carcinogens, correct?	13	study because the Jakszyn study had data on
14	MR. NIGH: Object to form. I think	14	endogenous nitrosamines, which means that they had
15	that's the 21st time that question has been	15	already been there and measured in that population.
16	asked.	16	But they had to get there somehow in
17	MR. FOWLER: Well, it was just a	17	the body, and that's probably through, again,
18	foundation because I was shifting gears, sir.	18	outside. So a lot of endogenous NDMA could
19	BY MR. FOWLER:	19	initially be exogenous, and it's just a matter of
20	Q Right, Doctor?	20	when you're measuring, you know. When you're
21	A Correct.	21	measuring NDMA, you're measuring somebody's blood,
22	Q And you have not and cannot draw any	22	and there is NDMA in there, that would be
23	conclusion that any of the workers who expired in	23	endogenous. But they have to be taking it from the
24	that study died from NDMA cancer, NDMA-induced	24	outside to -- for that NDMA to get into the body.
25	cancer, correct?	25	So I'm not sure if I answered your
	Page 94		Page 96
1	A Can you repeat the question, please?	1	question, but I just wanted to clarify on endogenous
2	Q You cannot tell -- and the authors of	2	versus exogenous.
3	this study made no -- reached no conclusion that any	3	Q Thank you, Doctor.
4	of the workers who died during this study period	4	And if I understand what you just
5	died as a result of NDMA-induced cancer; isn't that	5	said, you believe that -- that endogenous levels of
6	correct?	6	NDMA at some point started from the outside? Is
7	A Well, the study actually showed	7	that what you're saying?
8	elevated risks of death secondary to high NDMA use	8	A I think so, because as we've
9	versus low NDMA use in the different types of	9	discussed, they -- NDMA is in the environment, and
10	cancer. That's what the study actually set out to	10	it gets into our body eventually. So I'm not aware
11	do. I'm -- I'm missing your question. I'm sorry.	11	of any mechanisms that the body itself creates
12	Q Okay. I'll just withdraw that and	12	endogenous NDMA. It has to be brought into our body
13	move on.	13	from -- exogenously, if you will.
14	Sir, you testified yesterday that the	14	Q You're not aware because you're not a
15	mechanism of cancer with exogenous exposure may take	15	toxicologist, correct?
16	longer follow up than for endogenous exposure. Do	16	A No.
17	you recall that testimony?	17	Q This is completely outside your field
18	A I do. If I could clarify.	18	of education, training or experience to be
19	Q I really -- I only had that one	19	commenting on endogenous NDMA, correct, sir?
20	question, if you recall testifying.	20	MR. NIGH: Object to form. He's been
21	And so my follow-up to that is, you	21	asked numerous questions about this.
22	further testified that you believe it takes longer	22	You can -- you can answer.
23	because you have to take it longer. It has to be	23	THE WITNESS: I -- I -- again, I was
24	digested and absorbed. Do you recall saying that?	24	asked about endogenous NDMA with respect -- in
25	A Well, now that I think about it, I'd	25	an epidemiological studies context. I did not

<p style="text-align: right;">Page 97</p> <p>1 opine, nor did I -- was I asked, I believe, to 2 opine about, you know, toxicologic -- 3 toxicological aspects of endogenous NDMA. It 4 was just in the context of that one study -- 5 study that we discussed yesterday.</p> <p>6 BY MR. FOWLER:</p> <p>7 Q Okay. Thank you.</p> <p>8 And, Doctor, am I correct that you are 9 unaware of the mechanism by which NDMA can be a 10 carcinogenic substance in animals, for example?</p> <p>11 A Well, from the literature that I have 12 read and I have included in my report, it's through 13 genotoxic mechanisms and potentially through other 14 mechanisms that would qualify as a promoter for 15 cancer.</p> <p>16 Q You are not -- you have never 17 published on quote/unquote cancer promoters, have 18 you, sir?</p> <p>19 THE COURT REPORTER: Cancer what?</p> <p>20 MR. FOWLER: Promoters.</p> <p>21 BY MR. FOWLER:</p> <p>22 Q Right?</p> <p>23 A No, that's not my field. What I 24 was -- what I was trying to say is that for the 25 biological plausibility section of my report and my</p>	<p style="text-align: right;">Page 99</p> <p>1 you're asking me. That's not my field, and I 2 did not look at that.</p> <p>3 BY MR. FOWLER:</p> <p>4 Q Does -- does exposure to a chemical 5 that -- that is being studied, does exposure affect 6 the biologic plausibility in any attempt to evaluate 7 the biologic plausibility, sir?</p> <p>8 MR. NIGH: Form objection.</p> <p>9 THE WITNESS: Can you clarify?</p> <p>10 BY MR. FOWLER:</p> <p>11 Q Sure. Does the method of exposure 12 affect the analysis of biologic plausibility when 13 assessing if exposure can lead to cancer?</p> <p>14 MR. NIGH: Form objection.</p> <p>15 THE WITNESS: Yes, it could.</p> <p>16 BY MR. FOWLER:</p> <p>17 Q Doctor, the Hidajat study used a 18 sub-distribution hazard analysis; is that your 19 recollection?</p> <p>20 A That's right.</p> <p>21 Q And given that it was over the course 22 of 49 years of observation, the 94.1 percent of the 23 study had died, would you agree it's very difficult 24 to determine cause of death?</p> <p>25 A I disagree because this was one of the</p>
<p style="text-align: right;">Page 98</p> <p>1 readings, I have reviewed some basic science cancer 2 studies to form my opinion about the mechanism of 3 NDMA cancer.</p> <p>4 Q And you do not have an opinion whether 5 any of the NDMA or NDEA contained in valsartan 6 products ever leaves the liver, correct?</p> <p>7 MR. NIGH: Form objection.</p> <p>8 THE WITNESS: I cannot -- I don't have 9 an opinion on that.</p> <p>10 BY MR. FOWLER:</p> <p>11 Q And if it doesn't leave -- did you 12 consider what body systems -- what tissue systems 13 NDMA that is ingested in -- with an oral -- orally 14 ingested in tablet form, did you make any attempt to 15 consider what parts of the body that oral ingestion 16 may reach at the level of exposure in the pill?</p> <p>17 A I believe that's a --</p> <p>18 MR. NIGH: Hold on. Hold on. Hold 19 on. Hold on.</p> <p>20 Are you done with the question?</p> <p>21 MR. FOWLER: I am.</p> <p>22 MR. NIGH: Okay. Form objection.</p> <p>23 You can answer, Doctor.</p> <p>24 THE WITNESS: I believe that's a more 25 of a basic pharmacology toxicology question</p>	<p style="text-align: right;">Page 100</p> <p>1 few papers that actually -- what the 2 sub-distribution hazard that you explained does is 3 actually controlled -- it calculates the hazard of 4 death. It controls the hazard of death due to 5 cancer from death due to other causes. And this was 6 rightfully done -- because of the very long follow 7 up, it's likely that these men could die of other 8 causes.</p> <p>9 And if you don't take that into 10 account, you may actually see a protective effect 11 from any exposure, because people are not surviving 12 long enough to get cancer. And so the 13 sub-distribution hazard -- it's called 14 sub-distribution hazard because it comes from a sort 15 of a -- I don't want to say different, but a more 16 sophisticated model that takes into account death 17 due to other causes.</p> <p>18 Q Do you know how to calculate a 19 sub-distribution hazard ratio?</p> <p>20 A I'm familiar with the methodology, and 21 the modeling that -- they have the equation in their 22 paper actually.</p> <p>23 Q But you've never done it?</p> <p>24 A I don't think I have done it --</p> <p>25 MR. NIGH: Hold on. Hold on.</p>

<p>1        Form objection. I can't tell, "you've 2 never done it," calculated whenever or from 3 that study. Form objection.</p> <p>4        MR. FOWLER: Thank you for clarifying, 5 Counsel.</p> <p>6 BY MR. FOWLER:</p> <p>7        Q     Dr. Etminan, you have never, yourself, 8 made any such calculation of a sub-distribution 9 hazard ratio at any time, correct?</p> <p>10      A     No, because I haven't done studies 11 that have such a long follow up. So I have not done 12 it myself, but I'm familiar with the methodology.</p> <p>13      Q     Okay. Sir, yesterday, we talked -- or 14 you talked a good bit about the relative risk 15 calculations and your opinions with regard to when 16 there is a wide confidence interval. Do you recall 17 those -- that testimony?</p> <p>18      A     Yes.</p> <p>19      Q     And you -- you said that it was a wide 20 confidence interval because of a small sample size? 21 Is that -- is that what you believe?</p> <p>22      A     Well, sometimes it is a sample size, 23 but it's actually more a function of number of cases 24 or cancer cases, which sometimes can be a function 25 of sample size, sometimes not. So if I want to be</p>	<p>Page 101</p> <p>1        number of events are sort of directly proportional. 2 But there are situations such as cancer where you 3 have a large sample size, but you still have a small 4 number of events. So what affects the precision of 5 confidence interval is mostly -- it can be a sample 6 size issue, but it's mostly directly related to the 7 number of events or cases.</p> <p>8        Q     Doctor, you mentioned several times 9 yesterday that the P value, according to the ASA, 10 has -- has lost importance; is that a fair 11 characterization?</p> <p>12      A     Well, it's still being used and 13 accepted by many journals, but what I -- I believe I 14 said was that the ASA has warned on the 15 interpretation of what the P value is and what it is 16 not.</p> <p>17      Q     Yes, sir. And the P value is simply 18 the probability that results such as those actually 19 observed in the study could arise under the null 20 hypothesis? That's what a P value is, correct?</p> <p>21      A     Yes.</p> <p>22      Q     And what is the null hypothesis in the 23 Hidajat study, Doctor?</p> <p>24      MR. NIGH: Form objection.</p> <p>25      THE WITNESS: The null hypothesis --</p>	<p>Page 103</p>
<p>1        more precise, I would say that the width of the 2 confidence interval is -- is one of the -- one of 3 the variables that affects the precision or the 4 width of the confidence interval or the number of 5 events or cases, which -- which could be related to 6 sample size.</p> <p>7        Q     And you agree, Doctor, that high 8 variability can also affect the confidence interval?</p> <p>9        A     That is also one of the other 10 parameters that can affect the confidence interval, 11 yes.</p> <p>12      Q     And, Doctor, when you're talking about 13 sample size, let me just give you a hypothetical. 14 If there were 5,000 patients in a -- in a cohort 15 study and somebody is studying the number of 16 pancreatic cancers, for example, let's say there's 17 14, do you -- is it your contention that the 14 is 18 the sample size or the 5,000 cohort members?</p> <p>19      A     Again, to be more precise, in many 20 cases, sample size is a function of the number of 21 cases as well. So I mean, usually if you have a 22 larger sample size for many conditions, let's say, 23 heart attacks, the more people you follow up, the 24 more people are going to have heart attacks.</p> <p>25      So in this situation, sample size and</p>	<p>Page 102</p> <p>1        hypothesis would be that there is no risk of 2 NDMA with cancer deaths.</p> <p>3 BY MR. FOWLER:</p> <p>4        Q     Did you operate under a null 5 hypothesis in your research and report drafting in 6 this case, sir?</p> <p>7        MR. NIGH: Form objection.</p> <p>8        THE WITNESS: No, because null 9 hypotheses are done when you actually want to 10 do an -- a true experiment. When you're 11 looking at observational studies you don't -- 12 you don't have a -- I mean, you don't start 13 with a null hypothesis. You -- you would form 14 a hypothesis, but null hypotheses are mostly 15 related to when you're designing your 16 randomized trial and you want to calculate your 17 sample size. And you have --</p> <p>18        THE COURT REPORTER: I'm sorry, what? 19 I'm sorry. Can you repeat the end of your 20 answer?</p> <p>21        THE WITNESS: What part of it did you 22 want me to repeat?</p> <p>23        THE COURT REPORTER: The hypotheses 24 are mostly related to designing your randomized 25 trial and you want to calculate your sample</p>	<p>Page 104</p>

<p>1 size. And you have...</p> <p>2 THE WITNESS: Yeah. So a null</p> <p>3 hypothesis is mainly used in a true -- in a</p> <p>4 randomized trial or a true experiment. When</p> <p>5 you want to calculate your power of the study,</p> <p>6 the null hypothesis is important. But for</p> <p>7 observational studies where I'm reviewing</p> <p>8 literature on a specific topic, I don't really</p> <p>9 see why a null hypothesis would be beneficial.</p> <p>10 BY MR. FOWLER:</p> <p>11 Q Doctor, when there are studies that</p> <p>12 are based on hospitalized patients, you agree that</p> <p>13 there is a bias to the -- the self-reporting from</p> <p>14 those patients? Do you understand the question?</p> <p>15 MR. NIGH: Form objection.</p> <p>16 THE WITNESS: I understand your</p> <p>17 question, but you have to be very specific,</p> <p>18 because self -- I mean, if it's a</p> <p>19 hospital-based study and both cases and</p> <p>20 controls are in the hospital, then you wouldn't</p> <p>21 have a self-reporting limitation.</p> <p>22 So it -- it's -- you have to have the</p> <p>23 very specifics of the study, and then you have</p> <p>24 to show exactly where a limitation of bias</p> <p>25 would affect the outcome. I mean, I don't want</p>	<p>Page 105</p> <p>1 Steve, can you load that up?</p> <p>2 (Whereupon, Exhibit 30 was marked for</p> <p>3 Identification.)</p> <p>4 THE WITNESS: Do you mind if I take a</p> <p>5 break after your question with the article?</p> <p>6 MR. FOWLER: Yes, this will be -- my</p> <p>7 last series of questions will be on this</p> <p>8 article and I'm done, sir. Can you make it</p> <p>9 10 minutes?</p> <p>10 THE WITNESS: Absolutely.</p> <p>11 MR. FOWLER: Thank you.</p> <p>12 MR. HARKINS: Introduced as</p> <p>13 Exhibit 30, if we can screen share.</p> <p>14 THE WITNESS: Let me just -- I'm</p> <p>15 having trouble.</p> <p>16 BY MR. FOWLER:</p> <p>17 Q There it is. Can you see that now?</p> <p>18 A Yes.</p> <p>19 Q Okay. Thank you. Do you recognize --</p> <p>20 have you seen this article before, Doctor?</p> <p>21 A I may have. I'm not sure.</p> <p>22 Q Do you agree or disagree that when</p> <p>23 doing an analysis using the Bradford Hill criteria,</p> <p>24 that it is appropriate to look to scientific</p> <p>25 articles in addition to epidemiologic articles when</p>
<p>Page 106</p> <p>1 to make generalizations on a hospital-based</p> <p>2 study.</p> <p>3 BY MR. FOWLER:</p> <p>4 Q Sure. Let me try it this way: For a</p> <p>5 lung cancer patient who's being presented with a</p> <p>6 survey to complete which may help them understand</p> <p>7 the cause of their lung cancer, do you believe that</p> <p>8 that creates a reporting bias from the patient?</p> <p>9 MR. NIGH: Form objection.</p> <p>10 THE WITNESS: The reporting bias would</p> <p>11 only occur if the patient also believed that</p> <p>12 the -- and these questionnaires are very long.</p> <p>13 It's not about, you know, did you take this or</p> <p>14 that. They -- they covered a whole host of</p> <p>15 different items. So unless a patient knows</p> <p>16 that a specific item is linked to the -- to</p> <p>17 their lung cancer, then no, I won't -- I</p> <p>18 wouldn't see any sort of a differential bias in</p> <p>19 that situation in terms of the cases and many</p> <p>20 controls.</p> <p>21 BY MR. FOWLER:</p> <p>22 Q Okay.</p> <p>23 MR. FOWLER: I'm going to mark</p> <p>24 Exhibit 30. It's an article applying the</p> <p>25 Bradford Hill criteria in the 21st century.</p>	<p>Page 108</p> <p>1 assessing any of these criteria?</p> <p>2 A What do you mean -- what do you mean</p> <p>3 between scientific article versus epidemiological</p> <p>4 articles?</p> <p>5 Q Fair point, sir.</p> <p>6 Do you agree that studies -- molecular</p> <p>7 studies, toxicology studies are appropriate to</p> <p>8 consider along with epidemiology studies when</p> <p>9 analyzing something under the Bradford Hill</p> <p>10 criteria?</p> <p>11 MR. NIGH: Form objection.</p> <p>12 THE WITNESS: I believe it depends on</p> <p>13 the question you're trying to ask. If your</p> <p>14 question is a general causation question and</p> <p>15 part of the Bradford Hill criteria requires a</p> <p>16 biologic plausibility, which usually requires a</p> <p>17 sort of mechanistic explanation, from animal</p> <p>18 studies. Then I don't think one would need --</p> <p>19 for this specific question, need to go any</p> <p>20 further examining, you know, other than that</p> <p>21 mechanistic part of the Bradford Hill that</p> <p>22 requires some evidence of a mechanism from</p> <p>23 animal studies.</p> <p>24 Beyond that, I don't think this</p> <p>25 question warrants further review of, you know,</p>

<p>Page 109</p> <p>1 complicated toxicological studies because, 2 again, it -- the question doesn't really mean 3 that. The question is on general causation. 4 So I would -- I would maybe shorten my answer, 5 if you will. It depends on the question.</p> <p>6 For the question that I answered, I 7 don't believe that those types of studies were 8 necessary.</p> <p>9 BY MR. FOWLER:</p> <p>10 Q Thank you.</p> <p>11 Let me direct your attention to 12 criteria five, biologic gradient.</p> <p>13 MR. FOWLER: I think it's on like the 14 fifth or sixth page, please. There are no page 15 numbers on mine.</p> <p>16 BY MR. FOWLER:</p> <p>17 Q Okay, sir. Do you see that Hill, 18 referring to Sir Bradford Hill, wrote that, "If the 19 dose response is seen, it is more likely that an 20 association is causal."</p> <p>21 Do you see that, sir?</p> <p>22 A Yes.</p> <p>23 Q And if you look about five lines down 24 you see, "However, Hill acknowledged that the more 25 complex dose-response relationships may exist, and</p>	<p>Page 111</p> <p>1 levels of exposure for your analysis here would be 2 important?</p> <p>3 MR. NIGH: Form objection.</p> <p>4 THE WITNESS: Again, these are not 5 from Bradford Hill himself. I believe these 6 are the opinions of the authors, correct?</p> <p>7 BY MR. FOWLER:</p> <p>8 Q I'm asking if you agree with that -- 9 that statement, sir.</p> <p>10 A Well, I want to -- I mean, I think 11 it's important to sort of establish that these 12 are -- what we have here on this screen and I'm 13 reading, are the opinions of the authors of this 14 paper.</p> <p>15 MR. NIGH: Doctor, you have a right -- 16 you have a right to look at this document. You 17 can upload it, remember, and look at it. 18 That's why it's put into chat.</p> <p>19 THE WITNESS: Okay.</p> <p>20 BY MR. FOWLER:</p> <p>21 Q My question, Doctor, just so you keep 22 it top of mind -- of course, you can look at 23 whatever you like.</p> <p>24 Do you agree that it would have been 25 important for forming your opinions in this case to</p>
<p>Page 110</p> <p>1 modern studies have confirmed that a monotonic dose 2 response curve is an overly simplistic 3 representation of most causal relationships."</p> <p>4 Do you agree with that, sir?</p> <p>5 MR. NIGH: Form objection. Agree that 6 that's what it says or agree with that 7 statement?</p> <p>8 MR. FOWLER: Thank you.</p> <p>9 BY MR. FOWLER:</p> <p>10 Q Do you agree with that statement?</p> <p>11 A Again, I think Hill is presenting a 12 very general idea, and I -- it could be true for 13 some instances and perhaps not for others.</p> <p>14 Q Do you believe that -- strike that.</p> <p>15 Let me just look a little bit further 16 down.</p> <p>17 You see after Footnote 9, "Integration 18 of advanced statistical capabilities, data modeling 19 techniques and knowledge from understanding of 20 biomolecular interactions have resulted in the 21 descriptions of more defined dose response curves 22 capable of showing molecular effects at very low 23 levels of exposure."</p> <p>24 Do you agree that that -- that 25 understanding the molecular effects at very low</p>	<p>Page 112</p> <p>1 understand the molecular effects at very low level 2 of exposure to NDMA and NDEA?</p> <p>3 MR. NIGH: Form objection.</p> <p>4 THE WITNESS: No. I don't agree 5 because, again, I was looking at a general 6 causation question of exposure of NDMA over a 7 long period. You know, it could have been 8 three years, five years, up to 40 years. That 9 was my question.</p> <p>10 And what these authors are -- are, I 11 believe, arguing, does not -- does not talk 12 about any specific type of question, does not 13 talk about the -- you know, the type of 14 exposure, the -- the risk of cancer, the type 15 of risk of cancer or the -- or the follow-up 16 involved.</p> <p>17 So for my specific question that I set 18 out to answer, I don't believe any -- I mean, 19 if there -- if there was any specific modeling 20 data, I would have looked at it. But I don't 21 believe that would negate looking at studies 22 that looked at -- at those responses.</p> <p>23 And by the way, the Hidajat studies 24 did quite a sophisticated dose response 25 analysis. So, again, I -- I don't quite</p>

	Page 113		Page 115
1	understand what these authors are -- are	1	level?
2	referring to when they're talking about	2	MR. NIGH: Form objection.
3	modeling, because statistical dosing modeling	3	THE WITNESS: I think threshold dose
4	was done in some of the studies that I	4	levels are a very technical, specific question
5	included.	5	with respect to NDMA and cancer. The more
6	BY MR. FOWLER:	6	general question that's sort of the umbrella
7	Q I want to show you the paragraph that	7	question that I was set up to look at was,
8	starts, "Biological gradient." It's just down below	8	generally speaking, does exposure to NDMA over
9	this box.	9	a long period cause cancer. And I don't
10	Doctor, "Biological gradient is an	10	believe that you need -- I mean, they were --
11	example of how data integration can complicate	11	statistical modeling was used in the studies.
12	causal inference." Do you agree with that	12	But I don't -- I don't think you specifically
13	description of the Bradford Hill criteria,	13	need sophisticated tools or modelings to set
14	biologic -- biological gradient?	14	out the question that I -- that I wanted to
15	A Yes.	15	answer.
16	Q And if you look three lines -- strike	16	BY MR. FOWLER:
17	that.	17	Q Well, Doctor, looking at the first
18	The next sentence, "New tools and	18	part of this criteria five, it states that
19	technical capabilities have allowed researchers to	19	Sir Bradford Hill -- it says, "However, Hill
20	characterize a variety of low level molecular end	20	acknowledged that more complex dose relationships
21	points that may not lead to disease or observable	21	may exist."
22	outcomes on a larger scale."	22	Did you consider that when trying to
23	Did I read that correctly, Doctor?	23	evaluate the biological gradient for NDMA, sir?
24	A Yes, I'm just rereading it.	24	MR. NIGH: Form objection.
25	Q Yes, sir.	25	THE WITNESS: Again, I did not have,
	Page 114		Page 116
1	And it says further down, "Thus	1	you know, data on NDMA gradient or doses.
2	molecular changes within the no observable adverse	2	My -- my question was to look at the literature
3	effect level may not contribute to disease and are	3	and answer the question whether long-term
4	more indicative of a threshold dose."	4	exposure to NDMA causes cancer. Again, I go
5	Doctor, with that backdrop, did you	5	back to what I mentioned a few minutes --
6	make any attempt to determine whether there is a no	6	seconds ago.
7	observable effects level for low doses of NDMA or	7	BY MR. FOWLER:
8	NDEA?	8	Q Yes, sir.
9	MR. NIGH: Form objection.	9	A Your -- your question I believe is
10	THE WITNESS: Again, that wasn't the	10	looking at a more specific type of a question.
11	question that I set out to answer. The	11	For a general causation question, I do
12	question that I set out to answer was -- was	12	not believe that -- and, again, with Bradford Hill's
13	exposure to NDMA over a long period of time,	13	statement here, which is very general, I do not
14	high dose versus low dose, has a differential	14	believe that for the question that I set out to do,
15	risk of cancer. What they're talking about	15	I needed that information that you mentioned.
16	here are -- again, they don't really specify	16	Q Thank you.
17	the type of studies, the type of exposure. I	17	MR. FOWLER: I have nothing further,
18	think they're making very -- very general	18	sir. I think we have left some time remaining
19	statements on the very large sort of scope of	19	for any follow-up questions. Thank you for
20	topics.	20	your time over these two days. I appreciate
21	BY MR. FOWLER:	21	it.
22	Q And do you believe, Doctor, that the	22	THE WITNESS: Thank you.
23	biological gradient of the Bradford Hill criteria	23	MR. NIGH: Do we have anybody else
24	can be satisfied when evaluating NDMA and NDEA	24	that's asking questions on the defense side?
25	without an understanding of any threshold dose	25	Steven, do you know?

Page 117

1 MR. FOWLER: No, sir. I don't believe  
 2 we do.  
 3 MR. NIGH: Okay. Can we get a -- are  
 4 we on the record, or can we go off the record?  
 5 THE VIDEOGRAPHER: Yes. The time is  
 6 now 11:09. We're going off the record.  
 7 (Whereupon, a short break was taken.)  
 8 THE VIDEOGRAPHER: The time is now  
 9 11:27. We're back on the record.  
 10 MR. NIGH: Steven, this is -- in  
 11 response to your question earlier about not  
 12 being on camera, I didn't want to be short with  
 13 you, and I did want to give you a reason. My  
 14 daughter has been -- was diagnosed with COVID  
 15 about a week and a half ago. I think that's  
 16 the timing. And so, frankly, I have had to  
 17 do -- and defend the deposition remotely. So I  
 18 don't have the same sort of bandwidth that I  
 19 have in my office. And with that, we have had  
 20 some storms that have rolled through both  
 21 yesterday and today. And when I'm on -- not on  
 22 video, but just speaking, then it doesn't have  
 23 as much breakup.  
 24 So I think right now, it's probably  
 25 okay. The weather is a little bit better

Page 119

1 MR. GALLAGHER: Duane Morris would  
 2 like a copy. I think we're already set up to  
 3 get one, but just in case.

4 MR. HARKINS: Same for  
 5 Greenberg Traurig. If you don't have an order  
 6 for us, we certainly want a copy.

7 MS. KAPKE: Jamie, this is Kara from  
 8 CVS and Rite Aid. I'll take a copy, just  
 9 regular delivery, etrans.

10 MR. TRISCHLER: This is Clem Trischler  
 11 from Mylan. I think we have -- we should have  
 12 a standing order for all depositions, so we  
 13 would want that. But if we don't, or if you  
 14 don't have that, we do want a copy.

15 THE COURT REPORTER: Counsel, anyone  
 16 else?

17 MR. SHAH: This is Nakul Shah for  
 18 Hetero Drugs and Hetero Labs. We would like a  
 19 final version of the transcript as well.

20 THE COURT REPORTER: Okay. Anything  
 21 else, counsel?

22 (Whereupon, the deposition concluded  
 23 at 11:27 a.m.)

Page 118

1 outside, but I figured I'd give you that  
 2 explanation since you asked. And I know that  
 3 we have had, you know, multiple other past  
 4 depositions where the one making objections has  
 5 not appeared on camera.

6 MR. FOWLER: Thank you. And best  
 7 wishes for your daughter's recovery. I'm sorry  
 8 to hear that.

9 MR. NIGH: Yes, thank you.

10 At this time, we do -- we're not going  
 11 to ask any questions, and so I'd like to thank  
 12 Dr. Etminan for his time. And I think that  
 13 this time, you're free to go. Thank you.

14 THE VIDEOGRAPHER: The time is now  
 15 11:27. This ends today's deposition. Thank  
 16 you. Thank you all.

17 THE COURT REPORTER: Counsel, does  
 18 anybody want copies?

19 MR. NIGH: We will want one copy. It  
 20 can come to me on the plaintiff's side, I don't  
 21 know if you have my information already -- and  
 22 then we do want a -- we do want to read the  
 23 transcript --

24 THE COURT REPORTER: Sure.

25 Any other counsel?

Page 120

#### C E R T I F I C A T E

1 I, Jamie I. Moskowitz, a Shorthand  
 2 (Stenotype) Reporter and Notary Public, do hereby  
 3 certify that the foregoing Deposition, of the  
 4 witness, MAHYAR ETMINAN, taken at the time and place  
 5 aforesaid, is a true and correct transcription of my  
 6 shorthand notes.

7 I further certify that I am neither  
 8 counsel for nor related to any party to said action,  
 9 nor in any way interested in the result or outcome  
 10 thereof.

11 IN WITNESS WHEREOF, I have hereunto set  
 12 my hand this 2nd day of September, 2021.

13 <%1154,Signature%>  
 14 Jamie Illyse Moskowitz  
 15 License No. XI01658

16

17

18

19

20

21

22

23

24

25

	Page 121	Page 123
1	Daniel A. Nigh, Esq.	1 In Re: Valsartan, Losartan, Et Al v.
2	dnigh@levinlaw.com	2 Mahyar Etminan (#4772413)
3	September 2, 2021.	3 ACKNOWLEDGEMENT OF DEPONENT
4	RE: In Re: Valsartan, Losartan, Et Al v.	4 I, Mahyar Etminan, do hereby declare that I
5	8/25/2021, Mahyar Etminan (#4772413)	5 have read the foregoing transcript, I have made any
6	The above-referenced transcript is available for	6 corrections, additions, or changes I deemed necessary as
7	review.	7 noted above to be appended hereto, and that the same is
8	Within the applicable timeframe, the witness should	8 a true, correct and complete transcript of the testimony
9	read the testimony to verify its accuracy. If there are	9 given by me.
10	any changes, the witness should note those with the	10
11	reason, on the attached Errata Sheet.	11 _____
12	The witness should sign the Acknowledgment of	12 Mahyar Etminan Date
13	Deponent and Errata and return to the deposing attorney.	13 *If notary is required
14	Copies should be sent to all counsel, and to Veritext at	14 SUBSCRIBED AND SWORN TO BEFORE ME THIS
15	cs-ny@veritext.com.	15 _____ DAY OF _____, 20____.
16		16
17	Return completed errata within 30 days from	17
18	receipt of testimony.	18 _____
19	If the witness fails to do so within the time	19 NOTARY PUBLIC
20	allotted, the transcript may be used as if signed.	20
21		21
22	Yours,	22
23	Veritext Legal Solutions	23
24		24
25		25
	Page 122	
1	In Re: Valsartan, Losartan, Et Al v.	
2	Mahyar Etminan (#4772413)	
3	ERRATA SHEET	
4	PAGE ____ LINE ____ CHANGE _____	
5	_____	
6	REASON _____	
7	PAGE ____ LINE ____ CHANGE _____	
8	_____	
9	REASON _____	
10	PAGE ____ LINE ____ CHANGE _____	
11	_____	
12	REASON _____	
13	PAGE ____ LINE ____ CHANGE _____	
14	_____	
15	REASON _____	
16	PAGE ____ LINE ____ CHANGE _____	
17	_____	
18	REASON _____	
19	PAGE ____ LINE ____ CHANGE _____	
20	_____	
21	REASON _____	
22		
23		
24	Mahyar Etminan Date	
25		

[&amp; - 610.567.0700]

&	115 83:11	2017 74:20 75:1,2	315 2:5
& 2:9,20 3:18 4:3,8,18 8:8	1154 120:15	2018 46:23	317.236.1313 4:10
0	12 19:8 25:5	202.331.3100 3:5	320 24:22 25:1
0.047 24:15	120 8:8 82:10,14,22	2021 1:14 65:19 66:6 120:14	32502 2:6
01 22:22 23:21 27:11 28:20	122 8:9	121:3	3333 3:9
02109 4:5	12211 2:10	21 3:14	33431-8561 2:16
047 24:24	13 55:9	2101 3:4	35 60:24
07102 4:15	130 83:16	21st 93:15 106:25	38 3:20
08540 3:15	14 102:17,17	22 54:17 55:21	4
1	15 53:11 88:5	2220 5:5	40 22:15 33:7 48:21 60:25
1 31:18 32:3,9,18 35:5,9 60:4 80:15 81:10 88:4,18 91:23 92:1,4,6,7	150 25:2,8,14,22,24 26:1,5,18 27:6 28:20 49:16	227 4:19	112:8
1.0. 92:13	15076 1:6	230 5:5	41 33:8
1.57 22:23 23:21	15219 3:21	25 1:14	412.263.2000 3:21
1.57. 24:6	15th 4:14	25,000 11:20 12:4,19	450 2:21
1.72 92:13	16 83:12	2500 3:9	46204 4:10
1:18 1:6	1800law1010.com 2:11	27th 4:4	4772413 121:5 122:2 123:2
10 53:11 59:16 107:9	1875 2:15	28 6:3 76:11,20,25	49 99:22
10:12 76:18	19 80:16 85:22,25 86:2,3 87:14	28202-2601 4:20	5
10:15 76:23	19422 2:21	2875 1:2	5 34:16 37:13 59:16
10:29 87:23 88:1	2 31:18 32:3,9,18 35:5,9 60:8 65:11,14 93:4 121:3	29 6:4 77:19,23 78:1,16,23 80:16	5,000 102:14,18
10:36 93:4	2,000 11:10 16:13,20 33:6,7	2nd 120:14	518.724.2207 2:11
10:37 93:8	2,100 33:9	3 3 93:8	53 4:4
100 4:14 28:14	20 12:18 74:19 123:15	30 6:5 62:17,17,19 106:24 107:2,13 121:17	561.962.2100 2:16
1000 3:4	20,000 11:19 12:4	30,000 74:19	6 8:10 84:18
107 6:5	200 2:21 3:9	300 2:15	60 8:6
11 4:9	200,000 74:14,23	301 3:20	600 4:19
11:09 117:6	20037 3:4	30305 3:10	60606 5:5
11:27 117:9 118:15 119:23		312.566.4801 5:6	609.924.0808 3:15
111 2:10			610.567.0700 2:22

[617.213.7000 - appropriate]

<b>617.213.7000</b>	<b>absolutely</b>	<b>ago</b>	<b>anatomy</b>
4:5	76:15 107:10	116:6 117:15	58:14
<b>63</b>	<b>absorbed</b>	<b>agree</b>	<b>anesthesiology</b>
8:7	63:4 94:24	9:25 13:10,19,24 16:7	66:14 68:14
<b>64</b>	<b>abstract</b>	19:24 20:11 22:10 28:14	<b>animal</b>
83:5	83:25	30:1,4 38:2 39:22 47:1	39:15 42:22,23 43:5 82:15
<b>678.553.2100</b>	<b>acceptable</b>	48:20 49:5 54:20,24 55:5	108:17,23
3:10	40:1	55:12 62:5,12,12,14 78:5	<b>animals</b>
<b>7</b>	<b>accepted</b>	93:12 99:23 102:7 105:12	97:10
10:17 84:18	89:12 91:9 103:13	107:22 108:6 110:4,5,6,10	<b>annual</b>
<b>704.444.3300</b>	<b>account</b>	110:24 111:8,24 112:4	74:18
4:20	100:10,16	113:12	<b>answer</b>
<b>71</b>	<b>accuracy</b>	<b>agreed</b>	7:2 15:13,17 16:16,21 18:2
37:7,11	65:23 121:9	15:5 16:11 22:13 31:1 38:8	24:4 28:23 29:2,6,8,12,24
<b>750</b>	<b>accurate</b>	89:25	30:6,11,14,16,21,25 31:3,6
2:10	25:8,14 66:3 74:16 84:7	<b>agreeing</b>	31:10 32:23 35:18 36:24
<b>76</b>	85:12	56:4	38:11 41:18 50:19,20 56:16
6:3	<b>acknowledged</b>	<b>agreement</b>	60:21 61:2 68:12 79:17
<b>77</b>	109:24 115:20	16:19	89:14,22 96:22 98:23
6:4	<b>acknowledgement</b>	<b>ahead</b>	104:20 109:4 112:18
<b>8</b>	123:3	57:14 79:25 80:12	114:11,12 115:15 116:3
	<b>acknowledgment</b>	<b>aid</b>	<b>answered</b>
	121:12	4:11 119:8	21:19 29:1 30:10,18 31:4
<b>8</b>	<b>acquire</b>	<b>air</b>	31:13 52:20 79:19 95:25
22:16 48:19 82:11	67:18	10:10,16 16:9	109:6
<b>8/25/2021</b>	<b>action</b>	<b>al</b>	<b>answering</b>
121:5	120:10	1:5,5 121:4 122:1 123:1	60:14
<b>8:32</b>	<b>added</b>	<b>albany</b>	<b>anybody</b>
1:15 9:2	26:20 28:7	2:10	116:23 118:18
<b>800</b>	<b>adding</b>	<b>albertsons</b>	<b>anyway</b>
84:18	25:14 27:20 66:8	4:21	81:21
<b>850.435.7013</b>	<b>addition</b>	<b>alcohol</b>	<b>apologize</b>
2:6	107:25	13:11,17,22,23	72:22
<b>9</b>	<b>additional</b>	<b>alcoholic</b>	<b>appearances</b>
	64:2	13:14,15,17	2:1 3:1 4:2 5:2
<b>9</b>	<b>additions</b>	<b>alfano</b>	<b>appeared</b>
8:4,5 87:14,15 110:17	66:6 123:6	3:18	118:5
<b>9:34</b>	<b>address</b>	<b>allotted</b>	<b>appel</b>
60:4	29:19 36:20	121:20	2:14
<b>9:49</b>	<b>addressed</b>	<b>allowable</b>	<b>appended</b>
60:8	29:16 36:16,18	26:3	123:7
<b>90</b>	<b>addressing</b>	<b>allowed</b>	<b>applicable</b>
62:21	41:11	113:19	121:8
<b>93,000</b>	<b>adjunct</b>	<b>american</b>	<b>applied</b>
19:12 25:7,15 27:7 28:17	68:8,18,23 69:4	10:25 11:11 16:3,7 17:9	88:15
<b>94.1</b>	<b>administration</b>	26:16	<b>apply</b>
99:22	15:14	<b>amount</b>	92:1,18
<b>973.757.1100</b>	<b>adult</b>	17:8 20:20 27:17,19 61:18	<b>applying</b>
4:15	16:3	80:6	91:3,7 106:24
<b>a</b>	<b>advanced</b>	<b>amounts</b>	<b>appreciate</b>
	110:18	16:2 48:23 49:7	39:19 116:20
<b>a.m.</b>	<b>adverse</b>	<b>analogies</b>	<b>approach</b>
1:15 119:23	39:8 114:2	64:12	56:10 85:19 91:15
<b>ability</b>	<b>affect</b>	<b>analysis</b>	<b>approached</b>
65:25	99:5,12 102:8,10 105:25	13:5 36:11 37:19,21 99:12	72:16 73:7
<b>able</b>	<b>aforesaid</b>	99:18 107:23 111:1 112:25	<b>approaching</b>
39:20 92:17,18	120:7	<b>analyzing</b>	73:9
<b>absence</b>	<b>agencies</b>	108:9	<b>appropriate</b>
91:20	72:1		107:24 108:7

[approximately - break]

<b>approximately</b>	24:17,25 25:13 33:5 55:24	<b>bandwidth</b>	105:13,24 106:8,10,18
74:13		<b>barnes</b>	60:25
<b>approximation</b>	12:2 26:4 27:15,22	<b>based</b>	82:3
74:22		<b>baseline</b>	5:9
<b>area</b>	28:13	10:24 11:5 13:6,25 14:12	<b>bill</b>
12:23 75:17	<b>assumptions</b>	14:22 15:5 16:14,20 21:15	84:20
<b>areas</b>	89:10,10 90:25	26:20 28:4 30:7 33:3,5	<b>billed</b>
71:21	<b>atlanta</b>	<b>baselines</b>	84:18
<b>arguably</b>	3:10	21:22	<b>biologic</b>
58:12	<b>attached</b>	<b>basic</b>	99:6,7,12 108:16 109:12
<b>arguing</b>	121:11	42:25 98:1,25	113:14
112:11	<b>attacks</b>	<b>basically</b>	<b>biological</b>
<b>argumentative</b>	102:23,24	35:4 51:16 81:5	97:25 113:8,10,14 114:23
29:5 36:1,9 89:21	<b>attempt</b>	<b>basis</b>	115:23
<b>article</b>	64:5 98:14 99:6 114:6	10:21 11:1 12:5 16:4 17:10	<b>biomolecular</b>
83:25 86:8,20,21 87:6	<b>attempted</b>	18:20 33:5 37:24 43:25	110:20
106:24 107:5,8,20 108:3	10:24 78:5 92:1	55:2,4,9	<b>bipc.com</b>
<b>articles</b>	<b>attention</b>	<b>bayer</b>	4:21
77:5,15,16 78:14,19,20	65:18 109:11	74:6	<b>bit</b>
82:10,14,22 83:6,11,16,23	<b>attorney</b>	<b>baylen</b>	48:18 51:4,5 101:14 110:15
84:19 85:22 86:3,17 87:9	121:13	2:5	117:25
87:10 91:2,4 107:25,25	<b>attorneys</b>	<b>bear</b>	<b>bladder</b>
108:4	64:25	72:22 78:1	45:24 79:7 82:9
<b>asa</b>	<b>august</b>	<b>beer</b>	<b>blood</b>
103:9,14	1:14	13:15	46:10 95:21
<b>ascertained</b>	<b>aurobindo</b>	<b>begins</b>	<b>blue</b>
77:16	2:23	60:8 93:8	2:21
<b>asked</b>	<b>author</b>	<b>believe</b>	<b>boca</b>
14:16,19 15:10,16,21 16:16	19:2,2 46:21	19:3 22:11 25:22 26:11	2:16
22:18 28:25 29:11 30:16	<b>authors</b>	28:13 38:16 39:10 52:11	<b>body</b>
39:2 52:19 54:25 55:2	32:16 47:3,8,20 54:15 55:8	54:3,7 58:6 60:22,24 66:1	18:4,10,14 63:4,5 95:3,5,17
93:16 96:21,24 97:1 118:2	94:2 111:6,13 112:10 113:1	68:18 70:11 71:8 72:10	95:24 96:10,11,12 98:12,15
<b>asking</b>	<b>available</b>	73:21 81:19,19 94:22 95:8	<b>bogden</b>
9:17,23 12:10,14 28:24	24:21 29:11 63:4,5 121:6	96:5 97:1 98:17,24 101:21	2:9
29:10,21,25 34:22,23 35:2	<b>avenue</b>	103:13 106:7 108:12 109:7	<b>bosick</b>
37:18 38:22 39:17 50:15	2:10	110:14 111:5 112:11,18,21	3:18
52:5,7 53:12 57:17 75:8	<b>average</b>	114:22 115:10 116:9,12,14	<b>boston</b>
90:8,11 99:1 111:8 116:24	10:25 11:11 12:19 14:24	117:1	4:5
<b>aspects</b>	16:3,14,19 17:9 49:24 50:3	<b>believed</b>	<b>boulevard</b>
97:3	50:8,24 54:16 55:1,8	106:11	2:15
<b>assess</b>	<b>aware</b>	<b>bell</b>	<b>bound</b>
14:11	11:7,17,21 12:16 18:8	2:21 40:21 53:23	23:16,16
<b>assessing</b>	24:18 41:1 48:10,15 58:12	<b>beneficial</b>	<b>box</b>
20:10 42:15,19 99:13 108:1	59:8 89:6,16 91:2 96:10,14	105:9	113:9
<b>assessment</b>	<b>b</b>	<b>benefit</b>	<b>bradford</b>
47:24	<b>baccalaureate</b>	70:16 72:24	6:5 106:25 107:23 108:9,15
<b>assimilate</b>	70:24	<b>best</b>	108:21 109:18 111:5
91:19	<b>back</b>	24:8 65:25 66:3 75:19	113:13 114:23 115:19
<b>assistant</b>	9:3 25:4,21,21 60:9 63:14	118:6	116:12
67:21	63:16 65:10 76:23 88:1	<b>better</b>	<b>brain</b>
<b>assisting</b>	93:9 116:5 117:9	117:25	79:10,10,13 83:4
72:4	<b>backdrop</b>	<b>beyond</b>	<b>break</b>
<b>associate</b>	114:5	108:24	59:1,8,12,18,22,25 60:2,6
66:12,13,18 67:1,21,25	<b>background</b>		76:14,19 87:24 93:6 107:5
<b>association</b>	43:24		117:7
43:17 44:11,19,25 45:6,12	<b>ball</b>		
45:18,23 46:4,10,16 47:2	2:15		
47:10 109:20			

[breakup - coming]

<b>breakup</b> 117:23	<b>cancer (cont.)</b> 46:5,17 47:3,11 48:24 49:9 49:15,18,22,25 50:1,4,9,12 50:16,23 51:21,25 52:15 53:4,14,21 54:15,17 55:9 55:20 56:12,23 57:1,2,2,3,3 57:6,20,25 58:4,22 60:16 61:5,9,21 62:1,8,16,25 64:8 79:7 80:2,3 82:9 83:10 85:4 85:6,22 87:8,13 88:8 92:13 92:15 93:24,25 94:5,10,15 95:10 97:15,17,19 98:1,3 99:13 100:5,12 101:24 103:2 104:2 106:5,7,17 112:14,15 114:15 115:5,9 116:4	<b>cases (cont.)</b> 106:19 <b>causal</b> 41:13 109:20 110:3 113:12 <b>causation</b> 29:13,23,24 30:2,17 56:21 61:24 108:14 109:3 112:6 116:11 <b>cause</b> 15:15 38:8 39:8 44:1 48:24 49:9 52:14 62:25 99:24 106:7 115:9 <b>caused</b> 79:13 <b>causes</b> 100:5,8,17 116:4 <b>causing</b> 38:18 <b>center</b> 4:14 <b>centre</b> 3:20 <b>century</b> 106:25 <b>certainly</b> 29:2 53:6 87:21 119:6 <b>certainty</b> 61:17 <b>certificate</b> 8:9 <b>certified</b> 1:16,17 <b>certify</b> 120:5,9 <b>change</b> 88:7 122:4,7,10,13,16,19 <b>changes</b> 65:23 66:5 67:22 114:2 121:10 123:6 <b>changing</b> 67:4 <b>characterization</b> 71:23 103:11 <b>characterize</b> 113:20 <b>charge</b> 76:16 <b>charlotte</b> 4:20 <b>chat</b> 111:18 <b>check</b> 40:6 <b>chemical</b> 81:7 99:4 <b>chemicals</b> 81:7 <b>chicago</b> 5:5	<b>chief</b> 66:24 <b>choice</b> 71:4 <b>chose</b> 80:5 <b>christopher.henry</b> 4:21 <b>christopher</b> 4:18 <b>cipriani</b> 2:20 <b>citation</b> 16:5 <b>cite</b> 18:16 32:15 87:8,16 <b>cited</b> 18:25 37:6 87:10,15 <b>city</b> 1:14 <b>clarify</b> 14:19 32:20,24 70:10 89:24 94:18 95:1 96:1 99:9 <b>clarifying</b> 101:4 <b>classes</b> 68:24 69:2 <b>clear</b> 21:13 68:17 <b>clem</b> 3:19 9:16 119:10 <b>client</b> 22:3,4,16 48:17 <b>clinical</b> 42:6,11 67:7 69:9,13,14,17 69:19,22 71:3,5 <b>clinically</b> 70:12 <b>cohort</b> 31:17 32:2 47:23 48:11 102:14,18 <b>collaborations</b> 69:3 <b>colleagues</b> 48:12 <b>colloquy</b> 29:5 36:1 <b>colorectal</b> 45:7 50:9 <b>columbia</b> 1:15 70:2 <b>column</b> 92:8 <b>combine</b> 58:18 <b>comfortable</b> 65:5 <b>coming</b> 74:23
<b>c</b>	<b>calculate</b> 11:5 17:13 23:2,9,14,23,23 92:17 100:18 104:16,25 105:5 <b>calculated</b> 23:5,8 24:9 38:13 39:11,18 101:2 <b>calculates</b> 100:3 <b>calculating</b> 38:19 <b>calculation</b> 23:12 101:8 <b>calculations</b> 101:15 <b>call</b> 48:4 68:7,8,23 <b>called</b> 46:24 100:13 <b>camera</b> 64:19,22 117:12 118:5 <b>canada</b> 1:15 <b>cancer</b> 15:15 26:25 28:22 29:14 30:9,25 31:6,12,14,21 32:6 32:13,19 33:12,18,19 34:15 35:6,23 37:5,15 38:4,18 41:5,13 43:21 44:1,12,13 44:14,20 45:1,7,13,19,24	<b>carcinogenicity</b> 20:10 21:8 42:6,12,16,20 42:24 <b>carcinogens</b> 43:21 93:13 <b>career</b> 11:4 43:12,15 70:13 <b>careful</b> 47:4,9 <b>carefully</b> 89:15 <b>carillon</b> 4:19 <b>carolina</b> 4:20 <b>carries</b> 89:9 <b>carry</b> 55:17,20 <b>case</b> 1:6 10:23 11:22 13:4,5 14:10 15:4 17:23 18:1 19:18 21:12 23:2 28:19 29:2 31:17 32:2 41:10 42:5 42:10 43:11,19 44:3,17,23 45:4,10,16,22 46:2,8,14 48:21 49:12 74:3 78:21 91:16 104:6 111:25 119:3 <b>cases</b> 17:12 101:23,24 102:5,20 102:21 103:7 105:19	

## [commencing - day]

<b>commencing</b> 1:15	<b>confidential</b> 1:9	<b>controlled</b> 100:3	<b>criteria</b> 6:4,5 57:11 77:20 78:15 80:11 82:17 84:2,4 86:4 87:7,11,15,18 90:22 106:25 107:23 108:1,10,15 109:12 113:13 114:23 115:18
<b>commenting</b> 96:19	<b>confirmed</b> 47:22 110:1	<b>controls</b> 20:21 21:1 100:4 105:20 106:20	<b>critical</b> 20:19 51:11 91:2
<b>community</b> 14:24	<b>confounder</b> 88:6,16,19,24 90:2,21 91:21 92:3,11,16	<b>copies</b> 77:14 118:18 121:14	<b>cs</b> 121:15
<b>company</b> 4:7 72:24 73:15	<b>connection</b> 17:25 41:13 44:3,22 45:3,9 45:15,21 46:1,7,13 66:25	<b>copley</b> 74:6	<b>culbertson</b> 4:3
<b>compared</b> 13:22 27:7 33:23 35:8	<b>consider</b> 20:2 89:3 98:12,15 108:8 115:22	<b>copy</b> 118:19 119:2,6,8,14	<b>cumulative</b> 17:14,14 25:25 33:22 35:14
<b>complete</b> 106:6 123:8	<b>consideration</b> 47:23	<b>corporate</b> 2:15	<b>cumulatively</b> 26:22 27:21 28:8
<b>completed</b> 70:17 121:17	<b>considering</b> 33:24	<b>correct</b> 10:12 15:18 17:17 22:1,17 25:2,3,16 28:16 35:8 37:1,8 38:1,4 40:17,25 46:21 51:14 55:24 62:8 64:4 67:5 67:6,13,17 68:2,3,6 69:23 69:24 70:22 72:2,5,25 73:16 74:1 82:23 83:2 88:21 92:5,9,20 93:13,21 93:25 94:6 96:15,19 97:8 98:6 101:9 103:20 111:6 120:7 123:8	<b>curve</b> 110:2
<b>completely</b> 96:17	<b>constitute</b> 58:13	<b>corrections</b> 123:6	<b>curves</b> 110:21
<b>complex</b> 54:22 56:20 91:11 109:25 115:20	<b>consultant</b> 74:12	<b>correctly</b> 88:14 113:23	<b>cut</b> 22:7 87:16
<b>complicate</b> 113:11	<b>consulting</b> 74:19,24	<b>counsel</b> 2:7,12,17,23 3:6,11,16,22 4:6,11,16,21 5:7 9:10,11 73:24 74:4 76:2 77:2,3 87:19 92:24 101:5 118:17 118:25 119:15,21 120:10 121:14	<b>cv</b> 1:6 65:10,11,20,23 66:2,11 69:7
<b>complicated</b> 109:1	<b>consume</b> 13:17 18:11,20	<b>count</b> 75:16	<b>cvs</b> 4:11 119:8
<b>composite</b> 77:1	<b>consumed</b> 17:15	<b>couple</b> 70:4 90:22	<b>d</b>
<b>compound</b> 20:11	<b>consumes</b> 13:11,15 16:3 17:9	<b>course</b> 72:9 84:17 99:21 111:22	<b>daily</b> 10:21 11:1,5,18 12:3,17 13:11,18 16:4,12 17:9 18:20 21:23 25:15 26:3,22 31:19 32:4 33:4,11 37:12 39:4,6,12,15 40:15 41:23
<b>compounds</b> 10:5 19:7 20:4 95:2	<b>consumption</b> 20:3	<b>court</b> 1:1,16 15:4 22:6 25:9 63:13 81:15 86:25 87:19 92:24 97:19 104:18,23 118:17,24 119:15,20	<b>dan</b> 36:4
<b>computer</b> 86:6	<b>contacted</b> 72:9,23	<b>cover</b> 57:22,22 59:2	<b>daniel</b> 2:3 16:23 59:23 121:1
<b>concentration</b> 13:1 24:10,14,19	<b>contacting</b> 73:3	<b>covered</b> 106:14	<b>data</b> 23:24 25:4,13 29:10,11,20 30:5,10,25 37:15 39:16 40:23 62:2 80:6,10,11,13 86:22 95:13 110:18 112:20 113:11 116:1
<b>concentrations</b> 22:21	<b>contained</b> 48:23 49:7 61:19 62:7 79:12 98:5	<b>covid</b> 117:14	<b>database</b> 78:13 81:8
<b>concept</b> 34:23 39:3 49:22	<b>containing</b> 17:16 20:1 21:25 24:19,21 48:23 49:8 51:20 52:14 53:3 55:19 56:11 61:4	<b>created</b> 80:20	<b>date</b> 65:19,19 122:24 123:12
<b>concerning</b> 15:22	<b>contend</b> 68:9 83:16 87:7	<b>creates</b> 96:11 106:8	<b>daughter</b> 117:14
<b>concierge</b> 5:10	<b>contention</b> 71:2,9 83:5,11 102:17	<b>credible</b> 53:1	<b>daughter's</b> 118:7
<b>conclude</b> 48:22 49:6	<b>contents</b> 8:1		<b>day</b> 11:11,20 12:4,19 16:13 19:13 24:22 25:7,23 26:19 28:8,17 32:12 33:9 38:3 49:16 62:10,15 63:22 120:14 123:15
<b>concluded</b> 32:17 54:16 119:22	<b>context</b> 96:25 97:4		
<b>conclusion</b> 93:23 94:3	<b>continuation</b> 9:2		
<b>conclusions</b> 92:4	<b>continue</b> 59:3,17		
<b>conditions</b> 102:22	<b>contribute</b> 21:8 114:3		
<b>conduct</b> 71:18	<b>control</b> 31:18 32:3 59:14		
<b>conferred</b> 71:7			
<b>confidence</b> 101:16,20 102:2,4,8,10 103:5			

[days - elaborate]

<b>days</b> 62:17,17,19,21 116:20 121:17	<b>depositions</b> 64:24 75:25 118:4 119:12	<b>differently</b> 83:20	<b>dose (cont.)</b> 109:19,25 110:1,21 112:24 114:4,14,14,25 115:3,20
<b>dc</b> 3:4	<b>derived</b> 12:9 92:8	<b>difficult</b> 99:23	<b>doses</b> 31:12 32:13 114:7 116:1
<b>death</b> 94:8 99:24 100:4,4,5,16	<b>describe</b> 69:23 71:4 75:20	<b>digested</b> 94:24	<b>dosing</b> 35:14 113:3
<b>deaths</b> 104:2	<b>described</b> 78:11	<b>direct</b> 109:11	<b>dr</b> 9:6 60:11 63:19,22 65:9 101:7 118:12
<b>decided</b> 84:1	<b>description</b> 6:2 7:6 113:13	<b>directing</b> 65:18	<b>drafting</b> 104:5
<b>deciding</b> 77:4	<b>descriptions</b> 110:21	<b>directly</b> 103:1,6	<b>draw</b> 37:6 93:22
<b>declare</b> 123:4	<b>design</b> 52:8 53:18 56:18	<b>disagree</b> 30:2 99:25 107:22	<b>drew</b> 91:23
<b>decreased</b> 74:25	<b>designed</b> 11:4 55:17 89:1	<b>discuss</b> 18:17 75:5	<b>drink</b> 10:11
<b>deemed</b> 123:6	<b>designing</b> 104:15,24	<b>discussed</b> 20:15 28:2 33:21 96:9 97:5	<b>drug</b> 40:3 72:23 73:19
<b>defend</b> 117:17	<b>despite</b> 91:10	<b>disease</b> 47:24 113:21 114:3	<b>drugs</b> 3:16 20:4 40:12 119:18
<b>defendant</b> 2:23 3:6,11,22 4:16 5:7	<b>determination</b> 56:13	<b>disorder</b> 66:22,23	<b>duane</b> 2:13 119:1
<b>defendants</b> 2:17 3:16 4:6,11 9:17 64:1 76:4	<b>determine</b> 11:4 13:5 64:5 71:19 99:24 114:6	<b>dispute</b> 12:5 54:18 55:2,5,10,13	<b>duanemorris.com</b> 2:17
<b>defense</b> 9:10 73:12 77:2 116:24	<b>determined</b> 40:17 88:5	<b>distribution</b> 99:18 100:2,13,14,19 101:8	<b>due</b> 20:3 21:24 100:4,5,17
<b>define</b> 37:4	<b>determining</b> 16:14	<b>district</b> 1:1,1	<b>duffy</b> 1:5
<b>defined</b> 39:7 71:21 110:21	<b>develop</b> 38:4	<b>dnigh</b> 2:7 121:2	<b>duration</b> 20:11 21:7 35:21 37:1,4 41:22 49:15 51:17,18 60:16
<b>definitely</b> 85:1	<b>developing</b> 35:22	<b>doctor</b> 9:13,25 24:4 27:5 28:12 33:3 35:18 41:10 72:8	<b>durances</b> 51:13 60:20
<b>degree</b> 61:17 69:12,18,21,23 70:1 70:7,7,17,21 71:6	<b>diagnosed</b> 117:14	<b>76:15,25 77:21 78:4 79:1,8 79:25 80:19 83:2 84:17 87:6 88:3 91:22 93:11,20 96:3 97:8 98:23 99:17 102:7,12 103:8,23 105:11 107:20 111:15,21 113:10 113:23 114:5,22 115:17</b>	<b>dye</b> 10:16
<b>delivery</b> 119:9	<b>die</b> 100:7	<b>document</b> 1:4 6:3 80:20 111:16	<b>e</b>
<b>denominator</b> 86:3	<b>died</b> 93:24 94:4,5 99:23	<b>documents</b> 7:5 76:3,5 77:1,6,9,20 78:6 78:7	<b>earlier</b> 26:9 117:11
<b>dep</b> 77:3	<b>diet</b> 16:7 26:17 33:23 34:1 47:24	<b>doing</b> 72:15 78:22 107:23	<b>early</b> 51:19 52:12
<b>department</b> 66:12,13,16,20,24 67:2,5,6 67:13,19,22,25 68:1,9,13 68:19,24	<b>dietary</b> 11:9 16:15 32:10 33:20 34:3,7 35:12,20 36:11,19 37:20	<b>door</b> 43:10	<b>eat</b> 10:12
<b>depending</b> 80:5,10	<b>diets</b> 28:2	<b>dosage</b> 49:18	<b>editor</b> 66:23
<b>depends</b> 108:12 109:5	<b>difference</b> 36:21	<b>dose</b> 20:11 21:6 24:20,25 26:3,6 26:12,18,20,21,22,24 27:21 27:23 32:11 33:17,22 34:3 34:5,8,23 35:10 36:11,12 36:15,17,18,20,20,25 37:4 37:21 38:6,14,16,17,20 39:7,9 41:22 63:8 64:14	<b>education</b> 67:3 96:18
<b>deponent</b> 121:13 123:3	<b>different</b> 22:19 34:24 53:14,15 54:8 60:19,20 64:13 75:18 81:7 85:3 86:11 89:14 94:9 100:15 106:15	<b>dose</b> 20:11 21:6 24:20,25 26:3,6 26:12,18,20,21,22,24 27:21 27:23 32:11 33:17,22 34:3 34:5,8,23 35:10 36:11,12 36:15,17,18,20,20,25 37:4 37:21 38:6,14,16,17,20 39:7,9 41:22 63:8 64:14	<b>effect</b> 39:8 91:20 95:9 100:10 114:3
<b>deposing</b> 121:13	<b>differential</b> 106:18 114:14	<b>either</b> 13:6 23:6 59:4 68:5 84:24	<b>effects</b> 110:22,25 112:1 114:7
<b>deposition</b> 1:13 9:3 64:20 65:3 76:2 117:17 118:15 119:22 120:5		<b>elaborate</b> 90:6	

[electronic - files]

<b>electronic</b> 77:17 80:23 83:21	<b>establishes</b> 34:14	<b>exogenous</b> 13:25 17:19 19:7 27:25 28:6,15 34:2 94:15 95:8,19 96:2	<b>extra</b> 26:12,18,20 27:21,23 28:7 28:19
<b>electronically</b> 86:5	<b>estimate</b> 25:6 54:15 55:8	<b>exogenously</b> 18:11 96:13	<b>eye</b> 72:4
<b>elevated</b> 94:8	<b>estimates</b> 19:21	<b>exp</b> 81:1	<b>f</b>
<b>emerging</b> 71:21	<b>estimating</b> 53:20 54:5	<b>expanded</b> 81:2,4	<b>fact</b> 10:14,19 11:7 12:5 16:2 18:24 20:14 24:18 37:23 59:20
<b>endogenous</b> 17:20,21 18:2,13 19:6 26:6 26:7,13,15 27:16,18,19,23 27:24 28:5,15 34:1 94:16 95:1,1,8,14,18,23 96:1,5,12 96:19,24 97:3	<b>et</b> 1:5,5 121:4 122:1 123:1	<b>expected</b> 13:12 33:12	<b>factor</b> 53:15
<b>endogenously</b> 18:9,19	<b>etminan</b> 1:13 8:2 9:6 60:11 63:19,22 65:9 101:7 118:12 120:6 121:5 122:2,24 123:2,4,12	<b>experience</b> 14:1 30:8 67:4 96:18	<b>faculty</b> 67:7,9,10 69:3
<b>ends</b> 60:4 93:4 118:15	<b>etminan's</b> 9:3	<b>experiment</b> 104:10 105:4	<b>fails</b> 121:19
<b>engine</b> 80:22	<b>etrans</b> 119:9	<b>expert</b> 73:15	<b>fair</b> 19:22 43:14 61:3 71:23 78:8 103:10 108:5
<b>ensuring</b> 82:1	<b>evaluate</b> 14:11 15:21 19:25 55:18 99:6 115:23	<b>expertise</b> 18:6 72:25	<b>falanga</b> 4:13
<b>entails</b> 69:16,18	<b>evaluates</b> 53:2	<b>expired</b> 93:23	<b>falkenberg</b> 5:4
<b>entire</b> 22:10 65:23 76:5,8	<b>evaluating</b> 42:15,19 62:24 114:24	<b>explain</b> 28:10 39:20 69:17	<b>falkenberggives.com</b> 5:6
<b>entitled</b> 19:6 53:20	<b>events</b> 102:5 103:1,4,7	<b>explained</b> 100:2	<b>familiar</b> 39:3 49:21 51:7 53:19,24 100:20 101:12
<b>environment</b> 16:9 95:5 96:9	<b>eventually</b> 96:10	<b>explanation</b> 108:17 118:2	<b>far</b> 18:19 66:19
<b>epi</b> 64:15	<b>evidence</b> 12:17 80:4,5 108:22	<b>exposed</b> 10:20 14:7 16:8 19:12 26:9 27:16 33:6,25 37:24 38:3 39:8 40:11 93:12	<b>fashion</b> 34:24
<b>epidemiologic</b> 39:14 89:9 107:25	<b>ex</b> 6:3,4,5	<b>exposure</b> 10:25 11:5 12:22 13:11,25 14:12,22 16:6,12,15 17:14 17:19 19:7,21 20:12,20 21:1,2,2 25:1,7,15,15,25 26:6,7,13,15 27:6,7,12,24 27:25 28:5,16,19,21 29:13 30:17 31:5,13,14,19 32:4 32:12,17 33:4,5,8,11,17 35:22 37:4,13 38:7 39:4,7 39:12,15 40:15 41:4 56:22 57:6,18,19,24 58:3,21 60:15 61:25 62:25 63:9	<b>faster</b> 70:8
<b>epidemiological</b> 43:2,6 55:17 96:25 108:3	<b>exactly</b> 12:9 35:12 70:9 90:8 105:24	<b>94:15,16 98:16 99:4,5,11 99:13 100:11 110:23 111:1 112:2,6,14 114:13,17 115:8 116:4</b>	<b>fda</b> 26:3,22 39:24 40:1
<b>epidemiologist</b> 55:16	<b>examination</b> 8:3 9:5,12 60:10 63:21	<b>expressed</b> 90:10	<b>fellow</b> 71:12
<b>epidemiology</b> 43:16 66:22 71:3,5 108:8	<b>examined</b> 15:23	<b>extended</b> 26:1	<b>fellowship</b> 71:10
<b>equation</b> 100:21	<b>examiner</b> 59:7,7	<b>extent</b> 17:21 18:2 20:2 21:23	<b>fewer</b> 66:19
<b>errata</b> 121:11,13,17	<b>examining</b> 41:22 108:20		<b>field</b> 18:6 96:17 97:23 99:1
<b>esophageal</b> 31:21 32:6 44:20 49:25 50:1 58:14 85:22 87:8,13	<b>example</b> 22:4 39:24 66:17 77:5 86:19 97:10 102:16 113:11		<b>fields</b> 43:15
<b>esophagus</b> 58:16,18	<b>excuse</b> 19:2 43:5		<b>fifth</b> 109:14
<b>esq</b> 121:1	<b>exhibit</b> 6:2 19:8 25:5 65:11 76:5,9 76:11,20,25 77:1,19,23,25		<b>figure</b> 74:23
<b>esquire</b> 2:3,4,4,5,9,14,14,15,20 3:3 3:8,14,19,19 4:4,9,13,18 5:4	<b>exhibits</b> 78:16,23 80:16,16 106:24 107:2,13		<b>figured</b> 118:1
<b>establish</b> 19:20 21:15,22 111:11	<b>exist</b> 8:10		<b>file</b> 86:6
<b>established</b> 15:22 40:2,10 92:19	<b>exists</b> 30:5 37:15 109:25 115:21		<b>filed</b> 15:4 48:21
			<b>files</b> 86:11

[final - hear]

final	form (cont.)	further (cont.)	gordon
119:19	82:24 85:9,16 88:22 89:18 89:20 90:18 92:21 93:14	110:15 114:1 116:17 120:9	3:18
find	96:20 98:2,7,14,22 99:8,14 101:1,3 103:24 104:7,13	<b>g</b>	<b>gotta</b>
31:17 32:2 35:24 36:7 37:19 53:1 86:9	105:15 106:9 108:11 110:5 111:3 112:3 114:9 115:2,24	<b>gallagher</b>	79:17,23
finding	<b>formation</b>	2:14 8:4 9:5,18 15:10 119:1	<b>gradient</b>
47:2	17:20,22 18:3,13	4:14	109:12 113:8,10,14 114:23 115:23 116:1
findings	<b>formed</b>	<b>gears</b>	<b>grant</b>
47:9,21	85:2	65:9 93:18	3:20
fine	<b>forming</b>	<b>general</b>	<b>greater</b>
65:6 90:16	111:25	12:10,14 16:6 29:12,23 30:2,17 31:13 41:11 50:12 54:8 56:21 58:8,10 61:24 64:11 95:3 108:14 109:3 110:12 112:5 114:18 115:6 116:11,13	18:19
finish	<b>formulated</b>	<b>generalizations</b>	<b>greenberg</b>
79:18,23	85:3	106:1	3:3,8 63:25 119:5
finished	<b>forth</b>	<b>generally</b>	<b>groups</b>
57:15,16 59:21 79:22	78:5	10:3,8 12:24 16:8 20:13 56:6 115:8	75:18
firm	<b>found</b>	<b>genotoxic</b>	<b>gtlaw.com</b>
2:3 63:25	10:5,10,15 22:22 44:11,18 44:24 45:5,5,11,17,23 46:3 46:15,19 49:12 64:15 78:19 78:20	97:13	3:5,11
first	<b>foundation</b>	<b>gentleman</b>	<b>guess</b>
24:3 33:7 79:5,15 92:12 115:17	93:18	19:1	57:17
fit	<b>four</b>	<b>georgia</b>	<b>h</b>
70:14 91:8	51:18 52:10 60:23 70:22	3:10	<b>h.j.</b>
five	<b>fowler</b>	<b>getting</b>	4:7
34:16 35:5 51:18 52:10 53:7 109:12,23 112:8 115:18	3:3 8:7 63:21,25 64:16,18 65:4,8,13,15 68:16,22 71:15,17 72:18 73:13 76:7 76:12,15,24 77:13,19 78:1 78:3,22 79:2,4,19,24 80:15 80:18 82:6,8,20,21 83:1,8,9 83:14,15 84:15,16 85:14,20 87:5,21 88:2 89:2 90:3 91:1 92:22 93:2,10,17,19 97:6 97:20,21 98:10,21 99:3,10 99:16 101:4,6 104:3 105:10 106:3,21,23 107:6,11,16 109:9,13,16 110:8,9 111:7 111:20 113:6 114:21 115:16 116:7,17 117:1	<b>give</b>	<b>hair</b>
floor	118:6	50:12 60:20 62:2 85:7,10 85:11 102:13 117:13 118:1	10:16
3:20 4:4,14	<b>fowlerst</b>	<b>given</b>	<b>half</b>
florida	3:5	61:2,23 99:21 123:9	117:15
2:6,16	<b>frame</b>	<b>go</b>	<b>hand</b>
focus	52:11	13:19,20 37:11 53:1,10 57:14 59:16 65:10 69:6 79:3,15,25 80:15 82:6,14 85:6 87:20 92:13,25 108:19 116:4 117:4 118:13	92:8 120:14
41:11	<b>framed</b>	<b>going</b>	<b>handling</b>
focused	62:23	9:10 13:19,20,21 25:4 37:11 38:4 48:9 54:20 56:9 56:10,12,20 60:5 62:20 71:20 72:11 76:18 78:2,6 78:11,15 85:7 87:16,23 93:5 102:24 106:23 117:6 118:10	64:23
41:22	<b>frankly</b>	<b>gomm</b>	<b>happen</b>
follow	117:16	20:15 51:5,5,12 52:11	91:20
53:17 56:3,7 60:25 61:10 94:16,21 100:6 101:11 102:23 112:15 116:19	<b>frederick</b>	<b>happens</b>	66:24
following	2:15	61:2,23 99:21 123:9	<b>happy</b>
9:18	<b>free</b>	<b>go</b>	74:7
food	118:13	13:19,20 37:11 53:1,10 57:14 59:16 65:10 69:6 79:3,15,25 80:15 82:6,14 85:6 87:20 92:13,25 108:19 116:4 117:4 118:13	<b>harding</b>
10:11,16 95:6	<b>function</b>	<b>going</b>	2:9
footnote	35:22	9:10 13:19,20,21 25:4 37:11 38:4 48:9 54:20 56:9 56:10,12,20 60:5 62:20 71:20 72:11 76:18 78:2,6 78:11,15 85:7 87:16,23 93:5 102:24 106:23 117:6 118:10	<b>harkins</b>
22:16,20 48:19 110:17	<b>free</b>	<b>gomm</b>	3:8 4:7 76:10 107:12 119:4
foregoing	35:22	20:15 51:5,5,12 52:11	<b>harkinss</b>
120:5 123:5	<b>function</b>	<b>gonna</b>	3:11
form	54:12 101:23,24 102:20	35:22	<b>harm</b>
10:2,7 11:12,23 12:6,20 13:7 14:13,25 15:6 16:18 17:3,5 18:9,19,21 19:15 20:5 21:10,17 24:3,3 25:17 25:18 27:8,13 30:13 31:2 31:22 32:7,22 33:14 34:20 35:25 38:9 40:4,18 41:6,15 41:25 44:5 48:1,14 50:6,10 51:1 52:18,19 53:5 54:19 55:3,11,22 56:1,17 60:18 61:6,22 63:10 64:9 68:11 68:21 72:12 73:1 77:7	<b>good</b>	38:8	
	<b>further</b>	9:6,7,13,14 29:10 30:5 36:4 60:11 63:22 85:23 86:2 91:8 101:14	<b>hazard</b>
	9:9 75:6 94:22 108:20,25	<b>google</b>	92:7,10,12 99:18 100:2,3,4 100:13,14,19 101:9
		78:18	<b>head</b>
			23:11 58:19
			<b>heading</b>
			81:19,20
			<b>health</b>
			72:1
			<b>healthcare</b>
			1:5 2:18
			<b>hear</b>
			41:18 118:8

[hearing - irbesartan]

<b>hearing</b>	<b>host</b>	<b>inclusion</b>	<b>ingested</b>
9:20 28:24	106:14	57:11 80:11 82:4,17 84:1,3 86:4 87:7,11,14,17	98:13,14
<b>heart</b>	<b>hours</b>	<b>income</b>	<b>ingestion</b>
102:23,24	65:2	74:19	98:15
<b>heavily</b>	<b>huahai</b>	<b>incorrect</b>	<b>initially</b>
77:9	2:18,18	19:22	65:4 95:19
<b>heinz</b>	<b>human</b>	<b>increase</b>	<b>instance</b>
2:20	18:3,13	13:12 20:3 26:24 28:20 29:14 30:7,22 31:7,11,19 32:4,9,18,25 33:11,17 35:5 35:10,21,22 37:12 41:3 46:19 48:22 49:6,16 57:8 58:21 62:15 73:18	16:1
<b>held</b>	<b>humana</b>	<b>increased</b>	<b>instances</b>
1:14	5:7	21:24 28:22 30:9,24 31:12 31:20 32:5,19 33:12 34:14 34:15 37:5,14 41:5 49:14 51:21 52:15 53:4 55:19 56:12 57:5,19,24 58:3 61:5 61:20 62:8 64:7 74:25 75:3	110:13
<b>help</b>	<b>hypotheses</b>	<b>increases</b>	<b>instructed</b>
106:6	104:9,14,23	31:5 32:17 33:9 41:23 60:15 61:25	75:5
<b>henry</b>	<b>hypothesis</b>	<b>incremental</b>	<b>instructions</b>
4:18	103:20,22,25 104:1,5,13,14	30:6,22 31:7,11 32:16,25 33:11 41:23	7:2
<b>hereto</b>	105:3,6,9	<b>independent</b>	<b>intake</b>
123:7	<b>hypothetical</b>	19:19	11:10,18 12:3,17 13:18 16:15 21:23 32:18 34:15 40:1 48:22 49:7,15
<b>hereunto</b>	102:13	<b>independently</b>	<b>integration</b>
120:13	<b>i</b>	14:11 17:20	110:17 113:11
<b>hetero</b>	<b>idaho</b>	<b>index</b>	<b>intend</b>
3:16,16 119:18,18	69:8,14 70:7,17,21	8:10	57:18,23 58:2,20
<b>hidajat</b>	<b>idea</b>	<b>indiana</b>	<b>interactions</b>
88:20 93:11 99:17 103:23	110:12	4:10	110:20
112:23	<b>identification</b>	<b>indianapolis</b>	<b>interested</b>
<b>high</b>	76:21 77:24 107:3	4:10	120:11
11:10,19 12:4 21:1 23:21	<b>identified</b>	<b>indicate</b>	<b>interject</b>
32:12 36:20 94:8 102:7	46:18 86:8	69:7	58:24
114:14	<b>identify</b>	<b>indicated</b>	<b>interlibrary</b>
<b>higher</b>	44:9,17,23 45:4,10,16,22	51:11 70:5	87:3
12:25 13:21 18:10 23:6	46:2,8,14	<b>indicative</b>	<b>interpretation</b>
24:6,6 26:2,21 33:19 35:6	<b>ii</b>	114:4	103:15
61:12	<b>illinois</b>	<b>individual</b>	<b>interrupt</b>
<b>highest</b>	5:5	13:10 20:2 29:22,23 39:8 52:6 88:8	57:13
33:22	<b>ilyse</b>	<b>individualized</b>	<b>interrupted</b>
<b>hill</b>	120:16	61:9	79:17
3:13 6:5 106:25 107:23	<b>impact</b>	<b>induced</b>	<b>interval</b>
108:9,15,21 109:17,18,24	19:25 41:23	93:24 94:5	101:16,20 102:2,4,8,10 103:5
110:11 111:5 113:13	<b>importance</b>	<b>industries</b>	<b>introduced</b>
114:23 115:19,19	103:10	3:6,12	22:3 107:12
<b>hill's</b>	<b>important</b>	<b>inference</b>	<b>introducing</b>
116:12	20:12 21:7 84:5,10 86:22	21:5 113:12	9:15
<b>hillwallack.com</b>	105:6 111:2,11,25	<b>information</b>	<b>introduction</b>
3:16	<b>inappropriate</b>	23:19,25 54:18 59:2 116:15	85:1
<b>hinshaw</b>	36:2,9	118:21	<b>investigate</b>
4:3	<b>include</b>	<b>ingersoll</b>	71:20,22
<b>hinshaw.com</b>	37:20 57:9 58:15 80:7,7,9	4:18	<b>investigated</b>
4:6	82:11		43:17
<b>hold</b>	<b>included</b>		<b>investigating</b>
16:17,17 24:2,2 29:4 32:21	25:6 32:11 77:5,8,12 80:3	43:25	43:25
32:21 33:13,13,13,14 52:18	80:12 81:11 85:13 97:12	<b>involved</b>	75:7,9 112:16
52:19 79:16,16 89:20,20	113:5	<b>involving</b>	43:2,7 73:25
98:18,18,18,19 100:25,25	<b>including</b>	<b>iowa</b>	69:11 70:6
<b>holding</b>	40:16 58:6,8		<b>irbesartan</b>
69:20			1:3
<b>honest</b>			
21:13			
<b>hospital</b>			
105:19,20 106:1			
<b>hospitalized</b>			
105:12			

[issue - lost]

<b>issue</b>	<b>kidney</b>	<b>lead (cont.)</b>	<b>listen</b>
28:18 57:1 64:7 65:2 103:6	57:2,25	46:20 53:4 56:12 57:19,24 58:3 99:13 113:21	89:15
<b>issues</b>	<b>kind</b>	<b>leave</b>	<b>literature</b>
71:22	18:17 70:3 83:21	59:23 65:6 86:22 98:11	11:9 15:12,17 31:17 32:2 41:2,12 44:2,7,9,10,18,24 45:5,11,17 46:3,9,15 49:13 55:1 80:2 97:11 105:8 116:2
<b>item</b>	<b>knocked</b>	<b>leaves</b>	<b>litigation</b>
106:16	43:10	98:6	1:3 9:17 14:6,23 17:13 57:2 65:1 72:4,11,20 74:13 75:7 75:10,16
<b>items</b>	<b>know</b>	<b>led</b>	<b>litigations</b>
106:15	9:20 12:13,24 13:21 16:6,8 16:9 18:12 20:24 23:15 26:8 27:17 29:20,22 32:8 33:10 36:8 38:10,11 40:19 49:24 50:3,8,16,17,21,24 51:24 53:7 54:12 55:17 56:14 59:16,22 62:6 63:5 64:23 65:13 69:16 73:10,19 74:22 75:9 77:22 85:2 86:12 90:12,16 95:9,20 97:2 100:18 106:13 108:20 108:25 112:7,13 116:1,25 118:2,3,21	55:19	73:25
<b>iud</b>	<b>knowledge</b>	<b>left</b>	<b>little</b>
72:20	66:3 110:19	70:3,19 92:12 116:18	51:4,5 110:15 117:25
<b>ives</b>	<b>known</b>	<b>legal</b>	<b>livenote</b>
5:4	10:19 13:14	5:10 121:23	1:17
<b>j</b>	<b>knows</b>	<b>level</b>	<b>liver</b>
<b>jakszyn</b>	106:15	10:24 18:18 28:21 34:1 40:2 63:6 64:7 88:6 98:16 112:1 113:20 114:3,7 115:1	45:12 98:6
19:1,2,12,22 25:20 27:17 28:16 95:12,13	<b>I</b>	<b>levels</b>	<b>llc</b>
<b>jakszyn's</b>		18:10 40:2 64:6,11,12 79:12 96:5 110:23 111:1 115:4	2:18 4:21
25:4,13		<b>levin</b>	<b>lip</b>
<b>jamie</b>		2:3	2:9 3:13,18 4:3,8,13 5:4
1:16 119:7 120:3,16		<b>levinlaw.com</b>	<b>load</b>
<b>jason</b>		2:7 121:2	107:1
3:19		<b>liability</b>	<b>loan</b>
<b>jersey</b>		1:3	87:3
1:1 3:15 4:15		<b>library</b>	<b>long</b>
<b>jessica</b>		77:17,17 81:23	26:23 53:1 56:3,6 100:6,12 101:11 106:12 112:7 114:13 115:9 116:3
2:20		<b>license</b>	<b>longer</b>
<b>jheinz</b>		120:16	52:15 59:17 94:16,22,23
2:22		<b>life</b>	<b>look</b>
<b>jmr</b>		33:7	12:22 25:24 36:12 71:21 78:6,11,15 85:24 86:9 89:1 99:2 107:24 109:23 110:15 111:16,17,22 113:16 115:7 116:2
3:22		<b>lifetime</b>	<b>looked</b>
<b>journal</b>		14:3 17:14 30:23 39:9	12:24 24:5 32:9,11,16 33:21 34:2,3 35:1,3,11,13 36:13,15 39:14 46:19 61:24 78:18 80:4 82:15 83:17 85:23 86:1 112:20,22
66:21,23		<b>lifetimes</b>	<b>looking</b>
<b>journals</b>		14:8	14:15 23:13 32:12 35:17 42:23 48:6 52:1 53:14 64:10 78:24 80:19 82:18 83:6,12 104:11 112:5,21 115:17 116:10
103:13		<b>liked</b>	<b>looks</b>
<b>js</b>		20:25	49:18 54:11 56:19 81:5 90:1
1:6		<b>likewise</b>	<b>losartan</b>
<b>justin</b>		69:25	1:2 121:4 122:1 123:1
5:9 65:13		<b>limitation</b>	<b>lost</b>
<b>k</b>		89:4,25 90:19,20 91:10 105:21,24	103:10
<b>kapke</b>		<b>limitations</b>	
4:9 8:6 60:10,12 61:1,15 62:4 63:13,18 119:7	53:15	25:21 89:7,16,24 90:6,10 90:13,15,17 91:5,12,13,14 91:16,18	
<b>kara</b>		<b>line</b>	
4:9 60:12 119:7		7:3,6,9,12 37:6 81:10 82:11 83:12 122:4,7,10,13,16,19	
<b>kara.kapke</b>		<b>lines</b>	
4:11		109:23 113:16	
<b>kathleen</b>		<b>linked</b>	
4:4		106:16	
<b>keep</b>		<b>lisa</b>	
111:21		4:13	
<b>kekelly</b>		<b>listed</b>	
4:6		37:7 78:21 91:25	
<b>kelly</b>			
4:4			
<b>key</b>			
81:21			

## [lot - nanogram]

<b>lot</b>	23:15 30:1 47:17 73:17 88:24 95:18	<b>mdl</b>	1:2	<b>men</b>	100:7	<b>modeling</b>	54:10 100:21 110:18 112:19 113:3,3 115:11
<b>lots</b>	36:1 40:11	<b>mean</b>	11:13 12:7 15:24 18:5 20:6 23:2,6,8,11,14,23,23 24:9	<b>mention</b>	22:16 50:23 78:17	<b>modelings</b>	115:13
<b>love</b>	29:8		24:13,24 25:1,23 31:8 32:25 35:7 39:14 40:19	<b>mentioned</b>	29:8 37:20 48:18 51:6 70:3 71:25 73:4 74:21 75:22	<b>modern</b>	110:1
<b>low</b>	21:2 23:20,20 32:13 36:20 94:9 110:22,25 112:1 113:20 114:7,14		47:13 49:17 51:24 53:9,10 54:9 57:13 59:15 63:2 67:20,23 75:17 77:22 80:16 81:1,4 84:24 86:1 89:19,24	<b>mentioning</b>	80:12 84:4,5,6 87:18 103:8 116:5,15	<b>molecular</b>	108:6 110:22,25 112:1 113:20 114:2
<b>lower</b>	23:15 61:12		91:10 95:3 102:21 104:12 105:18,25 108:2,2 109:2 111:10 112:18 115:10	<b>merely</b>	52:2	<b>moment</b>	75:8 76:11
<b>lowest</b>	33:24	<b>means</b>	61:11 63:3 81:2 90:13 92:6 95:14	<b>meridian</b>	47:11	<b>monotonic</b>	110:1
<b>lung</b>	45:18 55:9 106:5,7,17	<b>meant</b>	59:10			<b>monroe</b>	5:5
<b>lwalsh</b>	4:16	<b>measure</b>	84:11	<b>mess</b>	81:17	<b>moot</b>	88:21 92:5
<b>m</b>		<b>measured</b>	95:15	<b>met</b>	59:13	<b>morning</b>	9:6,7,13,14 51:7 60:11
<b>madeline</b>	2:4	<b>measures</b>	34:3	<b>method</b>	80:11 82:17 86:4 87:7,11 87:14,17	<b>morris</b>	2:13 119:1
<b>magnitude</b>	92:7,10	<b>measuring</b>	95:20,21,21	<b>methodology</b>	83:22 89:1 99:11	<b>moskowitz</b>	1:16 120:3,16
<b>mahyar</b>	1:13 8:2 9:3 120:6 121:5 122:2,24 123:2,4,12	<b>mechanism</b>	94:15 97:9 98:2 108:22	<b>methodology</b>	78:7 88:10,14,15 89:4,7,8 89:12,17 90:12,17 91:3,7 91:10,12,18 92:2,9,18 100:20 101:12	<b>mouth</b>	58:16
<b>major</b>	77:11	<b>mechanisms</b>	96:11 97:13,14	<b>milligrams</b>	24:22 25:1	<b>move</b>	27:1 86:21 94:13
<b>making</b>	28:13 114:18 118:4	<b>mechanistic</b>	108:17,21	<b>million</b>	22:23,23 23:3,21,22,22 24:15,25	<b>movement</b>	66:22,23
<b>manufacturers</b>	22:19 64:13 73:10	<b>media</b>	60:4,8 71:25 73:6 93:4,8	<b>mind</b>	76:14 107:4 111:22	<b>msc</b>	71:1
<b>mark</b>	76:4,8 77:19 106:23	<b>median</b>	52:3 61:10	<b>mine</b>	109:15	<b>mulberry</b>	4:14
<b>marked</b>	7:11 19:8 65:11 76:10,20 77:23 107:2	<b>medical</b>	68:4 78:12 81:18,20,22	<b>minimum</b>	61:18	<b>multiple</b>	64:24 93:13 118:3
<b>martin</b>	2:9	<b>medication</b>	17:16 48:24	<b>minuscule</b>	25:16 27:6	<b>mylan</b>	3:22 9:11,17 22:3,4,9 24:10 25:22,23 26:5,12,19 48:18 119:11
<b>massachusetts</b>	4:5	<b>medications</b>	20:1 21:25 24:20,21 49:8 51:20 52:14 53:3,4 55:19 56:11	<b>minute</b>	60:2 76:13	<b>mylan's</b>	22:22 23:3 24:14 48:23 49:7
<b>massey</b>	2:5	<b>medicine</b>	66:13 68:1 81:23	<b>minutes</b>	59:16 107:9 116:5	<b>n</b>	
<b>master's</b>	71:1	<b>medium</b>	21:2	<b>mirena</b>	72:20 73:4	<b>n.w.</b>	3:4
<b>math</b>	27:12	<b>meet</b>	57:10,11 84:1	<b>mischaracterize</b>	17:1	<b>nadler</b>	53:20 54:14
<b>matter</b>	37:1 42:9 73:15 75:4 95:19	<b>meets</b>	53:18	<b>mischaracterizes</b>	16:18	<b>nakul</b>	3:14 119:17
<b>matters</b>	75:7	<b>megan</b>	5:4	<b>missed</b>	81:9	<b>name</b>	34:12 35:20
<b>maz</b>	5:6	<b>member</b>	66:12,13,18	<b>missing</b>	82:2 94:11	<b>named</b>	19:1
<b>mazzotti</b>	2:9	<b>members</b>	102:18	<b>model</b>	53:22,25 54:3,4,8,14 90:24 100:16	<b>name's</b>	9:16 60:11
<b>mcgill</b>	71:11					<b>nanogram</b>	25:8,14,23,23 26:5 27:6,7

## [nanograms - ophthalmologist]

<b>nanograms</b>	<b>neurology</b>	<b>north</b>	<b>objections</b>
11:11,20 12:4,19 16:13,20 19:12 25:2,7,16 26:19 28:17,20 33:6,7,9 49:16	66:12,16,21,25	4:20	16:23 64:22 118:4
<b>national</b>	<b>new</b>	<b>notary</b>	<b>observable</b>
81:23	1:1 2:10 3:15 4:15 66:8 113:18	120:4 123:13,19	113:21 114:2,7
<b>ndea</b>	<b>newark</b>	<b>note</b>	<b>observation</b>
9:25 10:10,15,21,25 11:5 11:10,19 13:6,11,25 14:4,7 14:22 15:5,23 17:9,15 20:3 21:24 22:21 24:10 32:18 37:24 38:3,7,14,16 40:16 40:24 41:3 42:4,7,16 43:2 44:1,8,12,14,19,25 45:6,12 45:18,24 46:4,10,16,19 47:3,10 48:22 49:6 53:2 57:6,19,24 58:3,21 60:15 61:4,20 62:7 64:6 82:16,19 83:6,12 98:5 112:2 114:8 114:24	47:4,9 69:8 121:10	99:22	
<b>ndma</b>	<b>nigh</b>	<b>noted</b>	<b>observational</b>
9:25 10:10,15,21 11:10,19 13:1,6,12 14:1,4,7,23 15:5 15:13,23 16:3,6,8,20 17:14 18:13 20:3,20 21:24 22:12 26:13 27:19 28:6 29:13 30:18 31:5,12,19 32:4,12 32:18 33:17,18,22 34:1,2 37:24 38:3,7,16 40:16,24 41:4,13 42:12,20 43:7 44:1 53:2 57:6,18,24 58:3,21 60:14 61:3,19,25,25 62:7 62:25 63:3,6 64:6,12 79:12 80:2 81:11,13,23 82:5,12 82:16,18 83:6,12 84:5,11 84:12 85:6 93:24,24 94:5,8 94:9 95:1,2,18,21,22,24 96:6,9,12,19,24 97:3,9 98:3 98:5,13 104:2 112:2,6 114:7,13,24 115:5,8,23 116:1,4	47:21 123:7	44:10,17,23 45:4,10,16,22 46:2,8,14 104:11 105:7	
<b>ne</b>	<b>nine</b>	<b>notes</b>	<b>observations</b>
3:9	50:23 65:2	120:8	47:4 51:12
<b>necessary</b>	<b>nitrates</b>	<b>notice</b>	<b>observe</b>
88:7 92:11 109:8 123:6	81:7,8 82:12	8:8	57:4
<b>neck</b>	<b>nitrosamine</b>	<b>nshah</b>	<b>observed</b>
58:19	12:22 19:21 25:7,15 30:7 32:17 33:11 34:15 35:21 37:12 39:12,18 40:2 42:24 49:15 56:19,22 82:3	3:16	23:3 24:14 103:19
<b>need</b>	<b>nitrosamines</b>	<b>null</b>	<b>obviously</b>
20:1 23:15,24 39:20 51:22 52:15 55:20 61:3,19 108:18 108:19 115:10,13	10:20 12:3,18 13:18 17:21 18:3,10,19 19:13,25 26:7 26:10 28:15 35:1 37:5 40:10,15 43:12,18,22,25 51:20 52:13 55:18 56:11,22 81:12,25 82:11,16,18 95:2 95:14	92:4,12 103:19,22,25 104:4 104:8,13,14 105:2,6,9	38:6 52:1
<b>needed</b>	<b>nitroso</b>	<b>number</b>	<b>occasion</b>
47:22 65:24 116:15	19:7 95:2	6:2 12:9 37:10 60:4,8 62:3 65:14 74:15,16,17 89:9 93:4,8 101:23 102:4,15,20 103:1,4,7	72:14
<b>needs</b>	<b>non</b>	<b>numbers</b>	<b>occasions</b>
20:8 56:6	69:16	56:5 109:15	64:25
<b>negate</b>	<b>nonacademic</b>	<b>numerous</b>	<b>occupational</b>
112:21	70:19	96:21	60:24 64:15
<b>neither</b>	<b>nonalcoholic</b>	<b>nw</b>	<b>occur</b>
120:9	13:13	2:15	52:1 106:11
	<b>nonresponsive</b>	<b>ny</b>	<b>occurs</b>
	27:2	121:15	17:22 18:3
	<b>nonsmokers</b>	<b>o</b>	<b>offer</b>
	13:1		57:18,23 58:2,20 72:24
		<b>o'reilly</b>	<b>offering</b>
		4:13	79:11
		<b>oath</b>	<b>office</b>
		12:16 30:12	117:19
		<b>object</b>	<b>okay</b>
		15:6 16:17 17:3 24:3 25:17 25:17 27:8,13 29:4 30:13 31:2,22 32:7,21 33:14 34:20 35:25 38:9 40:4,18 41:6,15,25 44:5 48:1,14 50:6,10 51:1 52:18,19 54:19 55:3,11,22 56:1,17 61:6 64:9 73:1 85:16 93:14 96:20	9:21,22 11:17 17:5 24:15 24:16 34:20 39:11 43:1 50:22 52:25 53:9,19 55:7 58:11,20 59:4 67:24 75:13 75:24 79:2,5 80:25 84:14 85:21,21 86:5 89:6,13 90:4 90:15 92:23 94:12 97:7 98:22 101:13 106:22 107:19 109:17 111:19 117:3,25 119:20
		<b>objection</b>	<b>once</b>
		10:2,7 11:12,23 12:6,20 13:7 14:13,25 17:5 18:21 19:15 20:5 21:10,17 24:3 27:1 37:16 41:19 53:5 60:18 61:22 63:10 68:11,21 72:12 77:7 82:24 85:9 88:22 89:18,21 90:18 92:21 98:7,22 99:8,14 101:1,3 103:24 104:7 105:15 106:9 108:11 110:5 111:3 112:3 114:9 115:2,24	86:7
			<b>oncologist</b>
			50:18
			<b>ones</b>
			52:2
			<b>onset</b>
			51:25
			<b>open</b>
			21:13
			<b>operate</b>
			104:4
			<b>ophthalmologist</b>
			67:16

**[ophthalmologists - portrayed]**

<b>ophthalmologists</b>	<b>page (cont.)</b>	<b>peer</b>	<b>pharmacy</b>
67:8	122:7,10,13,16,19	11:9 41:2 42:15,19 49:13	5:7 70:12 71:12
<b>ophthalmology</b>	<b>paid</b>	<b>pen</b>	<b>pharmd</b>
66:20 67:2,4,7	74:13	84:23	69:8,11,16,21 70:1
<b>opine</b>	<b>pancreatic</b>	<b>pending</b>	<b>pharyngeal</b>
97:1,2	46:17 47:2,11 102:16	75:6	57:2 58:4,7,10
<b>opinion</b>	<b>papantonio</b>	<b>pendley</b>	<b>pharynx</b>
44:1 52:25 57:18,23 58:2,9	2:3,4	2:4	58:16,18
58:21 77:10 79:11 85:3	<b>paper</b>	<b>pennsylvania</b>	<b>phrased</b>
98:2,4,9	11:15 12:8 18:25 19:4,11	2:21 3:21	35:16
<b>opinions</b>	25:5,14 46:20 47:3,7,9,13	<b>pensacola</b>	<b>piedmont</b>
101:15 111:6,13,25	47:21 53:20 54:14,22 55:7	2:6	3:9
<b>opposed</b>	56:6 84:23 100:22 111:14	<b>people</b>	<b>pietragallo</b>
71:11	<b>papers</b>	26:11 27:22 28:4 64:23	3:18
<b>option</b>	18:24 35:23,23 47:17 51:8	100:11 102:23,24	<b>pietragallo.com</b>
59:4	51:12 100:1	<b>percent</b>	3:22
<b>oral</b>	<b>paragraph</b>	27:11 28:14,20 31:18 32:3	<b>pill</b>
56:19 58:5,8,9,11,13,15	113:7	32:9,18 34:16 35:5,9 37:13	62:6,7,9,14 98:16
98:13,15	<b>parameters</b>	99:22	<b>pills</b>
<b>orally</b>	102:10	<b>perfect</b>	62:18 79:12
98:13	<b>parametric</b>	20:7 48:3	<b>pittsburgh</b>
<b>order</b>	54:4	<b>period</b>	3:21
16:12 28:17 51:18 119:5,12	<b>parkway</b>	26:1,23 30:22,23 33:19	<b>pizzi</b>
<b>organs</b>	2:21	34:16 37:13 49:25 50:3,8	4:13
63:5,6	<b>part</b>	50:11,24 52:7,10,15 53:17	<b>place</b>
<b>orient</b>	10:23 13:3,4 19:18 22:11	54:16,21 55:1,8,25 56:7	22:5,10,15 95:9 120:6
79:5	23:1 28:4 67:9 84:20	62:9 94:4 112:7 114:13	<b>plaintiff</b>
<b>oriented</b>	104:21 108:15,21 115:18	115:9	14:6,23 17:13 72:25 73:25
70:12	<b>participated</b>	<b>periods</b>	74:25
<b>original</b>	42:23 43:1,4,6	49:22 53:18 54:5	<b>plaintiffs</b>
11:3 42:6,11 80:3	<b>particular</b>	<b>permissible</b>	2:7,12 42:10 43:9 74:4,12
<b>outcome</b>	52:6	39:4,6,12,15 40:15	76:3 77:2
105:25 120:11	<b>parts</b>	<b>permitted</b>	<b>plaintiff's</b>
<b>outcomes</b>	22:22,23 23:3,21,21 24:15	16:23	21:23 118:20
54:9 113:22	24:24 98:15	<b>person</b>	<b>plausibility</b>
<b>output</b>	<b>party</b>	14:24 27:20,20 28:5 35:6	97:25 99:6,7,12 108:16
80:24	120:10	61:3,18 62:5	<b>plausible</b>
<b>outset</b>	<b>pass</b>	<b>personally</b>	41:13
15:9 22:2	59:21 63:19	11:2	<b>plausibly</b>
<b>outside</b>	<b>patient</b>	<b>pertinent</b>	15:15
95:5,18,24 96:6,17 118:1	26:5,18 27:16,24 106:5,8	78:19	<b>please</b>
<b>outweigh</b>	106:11,15	<b>pesticides</b>	9:20 16:23 17:4 31:24
91:13	<b>patients</b>	10:15	63:12 69:7 82:20 84:15
<b>outweighs</b>	25:25 51:25 102:14 105:12	<b>pharma</b>	89:15 94:1 109:14
91:18	105:14	2:23	<b>plus</b>
<b>overall</b>	<b>patrick</b>	<b>pharmaceutic</b>	27:25
89:11	2:14	2:17,18	<b>point</b>
<b>overly</b>	<b>pc</b>	<b>pharmaceutical</b>	25:22 56:15 65:1 68:1,2
110:2	4:18	73:15	96:6 108:5
<b>oxford</b>	<b>pcgallagher</b>	<b>pharmaceuticals</b>	<b>points</b>
3:20	2:17	3:6,11 4:6 48:18 74:1	113:21
<b>p</b>	<b>pde</b>	<b>pharmacists</b>	<b>population</b>
<b>page</b>	39:18 40:3,24 41:4	69:16	26:8,10,15,17 28:2 33:25
6:2 7:1,3,6,9,12 8:4,5,6,7,8	<b>pdf</b>	<b>pharmacoepidemiology</b>	51:23 52:2,3 95:15
8:9,10 10:17 22:15,16	86:10	71:11,14	<b>portrayal</b>
48:19,21 69:6 79:7,8,15	<b>pediatrician</b>	<b>pharmacology</b>	57:8
80:15 82:7,20 83:8,14	67:15	43:15 66:14 68:9,14,14,19	<b>portrayed</b>
84:15 88:5 109:14,14 122:4	<b>pediatrics</b>	68:25 69:9,13,15,17,19,22	36:14
	67:13,25	98:25	

## [portraying - receiving]

<b>portraying</b>	<b>probably</b>	<b>purposes</b>	<b>raising</b>
48:3 73:3	24:1,1,5 26:16 59:20 62:19 73:17,19 95:17 117:24	24:13 44:16	65:2
<b>poses</b>	<b>process</b>	<b>pursue</b>	<b>randomized</b>
64:7	72:14	70:13	104:16,24 105:4
<b>position</b>	<b>product</b>	<b>push</b>	<b>range</b>
68:8,10,18 69:4	22:12 23:4 24:10,14 78:14	62:20	16:6 22:22 23:6,16,20 60:22,25
<b>possible</b>	<b>production</b>	<b>put</b>	<b>ranges</b>
11:14,15,22 26:23 43:17	7:5 76:8	35:13 63:7 65:11 69:14,17 84:23 85:6 111:18	22:12
<b>possibly</b>	<b>products</b>	<b>q</b>	<b>ranitidine</b>
54:10 70:14	1:3 22:22 40:3 98:6		75:5,14
<b>post</b>	<b>professional</b>	<b>qualify</b>	<b>raspanti</b>
70:23	43:12	97:14	3:18
<b>postdoc</b>	<b>professor</b>	<b>quantification</b>	<b>ratio</b>
71:10,12	67:2,21,21,25	63:7	92:7,10,12 100:19 101:9
<b>posting</b>	<b>program</b>	<b>quantified</b>	<b>raton</b>
78:4	69:11,12,19 70:5,12,16,24	84:6	2:16
<b>potential</b>	<b>projects</b>	<b>quantifies</b>	<b>rbk</b>
18:12	71:19	15:4	1:6
<b>potentially</b>	<b>promoter</b>	<b>quantify</b>	<b>reach</b>
26:24 97:13	97:14	10:24 14:12,22 60:16 90:1	63:8 98:16
<b>pottegard</b>	<b>promoters</b>	<b>question</b>	<b>reached</b>
20:15 51:6,12 52:11	97:17,20	9:21,24 11:24 12:11,15,15 14:15 15:13,16,18,20 16:13 16:15 18:2 28:23,25 29:1,1 29:9,9,10,12,13,21,23,24 29:25 30:3,6,10,21 31:1,4,6 31:10,13,24 34:5,10,18,22 35:2,11,17,19 36:2,3,5,8,14 36:17,17,18 37:18 38:11,15 38:17 41:12 48:6,10 50:19 50:20 53:13 54:7 56:10,16 62:24 63:1,12 68:17 73:6 83:4 87:12 89:14,15 93:15 94:1,11,20 96:1 98:20,25 105:14,17 107:5 108:13,14 108:14,19,25 109:2,3,5,6 111:21 112:6,9,12,17 114:11,12 115:4,6,7,14 116:2,3,9,10,11,14 117:11	94:3
<b>power</b>	<b>proportional</b>	<b>questionnaires</b>	<b>reaching</b>
105:5	103:1	106:12	59:3,6
<b>ppm</b>	<b>prospective</b>	<b>questions</b>	<b>read</b>
23:7	47:23 48:5,11	7:11 9:9,18 15:10,22,25 24:13 42:4 60:12,14 64:2 96:21 107:7 116:19,24 118:11	8:8 12:8 35:23 36:6 47:15 47:15,17,18 63:14,15 82:9 83:24,25 86:10 97:12 113:23 118:22 121:9 123:5
<b>precise</b>	<b>prostate</b>	<b>quick</b>	<b>reading</b>
102:1,19	46:5	23:11	18:15 111:13
<b>precision</b>	<b>protective</b>	<b>quickly</b>	<b>readings</b>
102:3 103:4	100:10	64:3	98:1
<b>predicted</b>	<b>provide</b>	<b>quite</b>	<b>really</b>
19:21	15:13	29:22 54:21 112:24,25	30:4 31:7 60:20 61:13 69:15 70:16 74:22 91:14 94:19 105:8 109:2 114:16
<b>preliminary</b>	<b>provided</b>	<b>quote</b>	<b>reason</b>
47:5,11,22 48:4	22:14 76:3 77:2	78:6 97:17	26:11 64:19 70:18,19 74:6 95:11 117:13 121:11 122:6 122:9,12,15,18,21
<b>presence</b>	<b>providing</b>	<b>r</b>	<b>reasonable</b>
20:4	12:16		61:17
<b>present</b>	<b>public</b>	<b>rafferty</b>	<b>reasons</b>
5:8 36:12	120:4 123:19	2:3	70:4 73:21 74:10
<b>presented</b>	<b>publication</b>		<b>recall</b>
77:10 106:5	46:24		15:11 19:3 20:21 40:23 47:16,18 66:5 70:9 74:11 74:15 88:3,14 94:17,20,24 101:16
<b>presenting</b>	<b>publications</b>		<b>receipt</b>
110:11	66:7,9		121:18
<b>presently</b>	<b>published</b>		<b>received</b>
66:11 75:21	11:8 19:1 41:2 42:14,18 46:3,15,23 97:17		69:7,21
<b>pretty</b>	<b>pubmed</b>		<b>receives</b>
28:3	81:23 85:6 86:20		10:25
<b>princeton</b>	<b>pull</b>		<b>receiving</b>
3:15	76:6		33:4
<b>prinston</b>	<b>pulled</b>		
2:17	88:20		
<b>print</b>	<b>purchase</b>		
86:7	86:16,21		
<b>printout</b>	<b>purchased</b>		
80:21,23	86:23		
<b>prior</b>	<b>purposefully</b>		
17:15,22 43:9 67:12 76:2 77:3 85:1 91:6	72:3		
<b>probability</b>			
103:18			

[recognize - scheduled]

recognize	remotely	respiratory	risk
107:19	117:17	68:1	26:24 28:7,22 29:14 30:9
recollection	repeat	response	30:24 31:5,12,14,20 32:5
24:8 99:19	9:21 31:23 48:25 63:11	32:11 33:17 34:4,6,8,23	32:19 33:12,19 34:14 35:6
recommended	94:1 104:19,22	35:3,10 36:11,12,15,17,19	35:22 36:21,21 37:5,14
26:2,22 48:12	rephrase	37:21 64:14 109:19,25	41:5 46:19 49:14 51:21
record	9:20	110:2,21 112:24 117:11	52:15 53:4 55:20 56:12
9:4 60:5,9 76:16,18,23	report	responses	57:5,19,25 58:4,22 60:15
87:20,23 88:1 92:25 93:5,9	10:15,17 15:3 16:5 18:16	112:22	61:5,20 62:1,8,15 64:8
117:4,4,6,9	18:25 22:10,15 23:13,20	responsibilities	73:18 88:7 101:14 104:1
recovery	25:6 29:3 30:16,19 34:7,12	66:15,19	112:14,15 114:15
118:7	36:7 37:7,8 48:21 49:6	restricted	risks
reefer	50:23 56:21 57:4,21 58:6	1:9 82:4	94:8
3:19	58:17 64:5 77:9,10 78:8,17	result	risperdal
refer	80:12,13 84:23 85:1 87:9	28:21 94:5 120:11	74:12
77:20	88:4,11 97:12,25 104:5	resulted	rite
reference	reported	110:20	4:11 119:8
22:4,9 84:11 95:12	31:18 32:3 44:18 46:9	results	road
referenced	47:10 88:7	25:1 85:7,11,12 103:18	3:9,14
121:6	reporter	retain	role
references	1:16,17 8:9 22:6 25:9 63:13	73:20	64:20 77:4
37:7,11	81:15 86:25 87:19 92:24	retained	rolled
referred	97:19 104:18,23 118:17,24	15:12 17:23 42:5,10 43:18	117:20
88:11	119:15,20 120:4	73:14,21,24 74:4	rooney
referring	reporting	return	4:18
33:16 109:18 113:2	105:13,21 106:8,10	121:13,17	rosemarie
regard	reports	review	2:9
84:3 88:13 101:15	22:18	15:12,17 29:15 31:16 32:1	rosemarie.bogden
regardless	represent	44:2,8,10 56:21 65:22 78:7	2:11
15:14	9:16 24:12 54:13 64:1	80:1 91:6 108:25 121:7	roszel
regular	representation	reviewed	3:14
37:24 119:9	54:25 110:3	11:9 17:12 41:2 42:15,19	route
regulatory	representing	49:13 78:13 82:23 83:5,11	15:14
72:1	28:20	84:22 86:4 98:1	rubber
reintroduce	request	reviewer	93:12
63:24	7:1,5	66:21,22	<b>s</b>
related	requested	reviewing	sample
81:6 102:5 103:6 104:15,24	63:16	78:20 83:22 84:18 105:7	101:20,22,25 102:6,13,18
120:10	required	revised	102:20,22,25 103:3,5
relates	86:20 123:13	65:20	104:17,25
1:4	requires	right	sara
relation	38:18,24 108:15,16,22	10:17 13:6 14:1,4,8,12,24	2:4
34:6 36:13	rereading	15:23 16:4,11 17:10,16	satisfied
relations	113:24	18:15,20 19:10 20:4,12,14	114:24
64:14	research	21:8,16,21,25 23:17,19	satisfy
relationships	11:3 13:4,17 18:1,8 19:19	24:10,11 27:7,12 29:3	90:21
109:25 110:3 115:20	34:13 40:20 41:1,21 42:6	30:12 37:3 39:23 40:12,14	saved
relative	42:11 44:16 64:4 67:9,9	40:21,24 41:14,24 43:23	86:11
88:7 101:14	70:13 71:18 73:11 78:13	44:3 46:22 49:16 50:15,18	saying
relatively	104:5	51:8,21 52:16,23 54:18,21	35:4 36:23 85:8 94:24 96:7
9:24	researched	55:21 56:16 57:8 62:3	says
relied	16:2 17:8,20 43:16	67:16,22 68:5 69:20 72:1	35:20 110:6 114:1 115:19
39:13 77:11	researchers	82:12,13 88:8,11 90:13	scale
remaining	113:19	92:8,19 93:20 97:22 99:20	113:22
116:18	researching	111:15,16 117:24	scenario
remember	43:24	rightfully	48:3
11:14 19:9,13,16 20:16,18	respect	100:6	scheduled
21:2 22:24 23:5,10 111:17	32:13 64:13 73:9 95:10	ring	75:25
	96:24 115:5	40:21 53:23	

## [scholar - state]

<b>scholar</b>	<b>series</b>	<b>single</b>	<b>sort (cont.)</b>
78:18	107:7	19:13 31:17 32:2 49:12	106:18 108:17 111:11
<b>sciegen</b>	<b>service</b>	62:6	114:19 115:6 117:18
4:6	87:4	<b>sir</b>	<b>sorts</b>
<b>science</b>	<b>set</b>	65:16 66:10 67:11 69:7,25	90:11
56:13 74:5 98:1	76:5 77:6 78:5 94:10	70:8,19 71:7,18 72:5,22	<b>source</b>
<b>scientific</b>	112:17 114:11,12 115:7,13	74:11,20 75:1,8,11,25	71:25
12:5,8 31:16 32:1 61:17	116:14 119:2 120:13	77:18 79:5 82:9 83:23 84:8	<b>sources</b>
107:24 108:3	<b>shah</b>	87:12 89:3,4,17 90:9,13	40:11
<b>scientist</b>	3:14 119:17,17	92:14 93:18 94:14 96:19	<b>south</b>
42:25	<b>share</b>	97:18 99:7 101:13 103:17	2:5 4:9
<b>scope</b>	107:13	104:6 107:8 108:5 109:17	<b>speaking</b>
114:19	<b>sheet</b>	109:18,21 110:4 111:9	10:3,8 12:25 16:22 20:13
<b>screen</b>	121:11	113:25 115:19,23 116:8,18	56:6 64:20,22 115:8 117:22
107:13 111:12	<b>shift</b>	117:1	<b>special</b>
<b>scroll</b>	65:9	<b>sit</b>	69:21
79:6	<b>shifting</b>	12:15 32:15 53:13	<b>specialties</b>
<b>search</b>	93:18	<b>sitting</b>	68:5
6:4 29:20 77:11,20 78:7,15	<b>short</b>	24:9	<b>specific</b>
78:21 80:3,10,22,24 81:11	35:21 41:3 49:15 51:13,24	<b>situation</b>	11:14 12:14 29:21 31:11
82:2 83:22 85:13 86:19	52:4,12 60:6,12 76:19	73:4,5 102:25 106:19	43:24 49:17,18 50:15 60:21
<b>searches</b>	87:24 93:6 117:7,12	<b>situations</b>	61:13 62:2,2 69:19 81:24
78:10	<b>shorten</b>	103:2	91:15 105:8,17 106:16
<b>second</b>	109:4	<b>six</b>	108:19 112:12,17,19 115:4
69:6 79:6 87:20 92:16 93:1	<b>shorter</b>	53:10	116:10
<b>secondary</b>	51:25 52:7 70:6	<b>sixth</b>	<b>specifically</b>
94:8	<b>shorthand</b>	109:14	12:24 42:4 43:21 44:8,13
<b>seconds</b>	120:3,8	<b>size</b>	50:1 51:2 56:18 58:7,10
116:6	<b>show</b>	91:20 101:20,22,25 102:6	64:10 69:18 71:3,7,10,13
<b>section</b>	22:12 73:18 105:24 113:7	102:13,18,20,22,25 103:3,6	82:5,18 115:12
58:17 59:10 97:25	<b>showed</b>	104:17 105:1	<b>specifics</b>
<b>seeing</b>	94:7	<b>slide</b>	105:23
40:23 79:3	<b>showing</b>	86:6	<b>specified</b>
<b>seek</b>	110:22	<b>slight</b>	20:21
71:19	<b>shown</b>	35:21	<b>specify</b>
<b>seen</b>	34:6,8	<b>small</b>	114:16
21:1 56:5 63:23 64:24 68:7	<b>sic</b>	101:20 103:3	<b>spelled</b>
107:20 109:19	69:11	<b>smokers</b>	19:3
<b>select</b>	<b>side</b>	11:18 12:3,18,22,25	<b>spoke</b>
78:14	116:24 118:20	<b>solco</b>	26:9 79:23 90:20
<b>selected</b>	<b>sign</b>	1:5 2:18	<b>stable</b>
69:23 82:17	8:8 121:12	<b>solutions</b>	28:3
<b>selecting</b>	<b>signature</b>	121:23	<b>standing</b>
78:7	120:15	<b>somebody</b>	119:12
<b>self</b>	<b>signed</b>	13:22 35:4,9 102:15	<b>stands</b>
69:23 105:13,18,21	121:20	<b>somebody's</b>	39:10 81:18,19
<b>sense</b>	<b>significant</b>	95:21	<b>start</b>
84:12	28:22 30:9,24 31:9,20 32:5	<b>sophisticated</b>	9:15,23 17:4 25:11 64:3
<b>sent</b>	44:11,19,25 45:6,12,18,23	38:25 100:16 112:24	86:14 91:24 104:12
35:24 121:14	46:4,10,16 49:14 57:5,8,9	115:13	<b>started</b>
<b>sentence</b>	<b>similar</b>	<b>sorry</b>	70:1 82:2 96:6
113:18	26:16 63:1	22:6 25:9 34:17 57:12,16	<b>starting</b>
<b>sentry</b>	<b>simple</b>	79:19,25 81:15 92:25 94:11	72:10 73:5
2:21	9:24 27:12 38:19	104:18,19 118:7	<b>starts</b>
<b>separate</b>	<b>simplistic</b>	<b>sort</b>	113:8
69:12,12	110:2	26:4,6 32:11 48:2 54:9 57:8	<b>state</b>
<b>september</b>	<b>simply</b>	61:13 62:2 64:11,14 72:15	4:4 48:7 69:8,11,14 70:6,7
120:14 121:3	50:16 51:19 66:6 67:18	72:16 73:3,7 75:17 85:2	70:21
	103:17	86:12 90:22 100:14 103:1	

[stated - thornburg]

<b>stated</b>	<b>studies (cont.)</b>	<b>sure (cont.)</b>	<b>tell (cont.)</b>
47:6 66:2	42:22,23 43:2,6,20 46:14 51:6 52:12 57:9,11 60:19	59:24 65:1 67:23 74:16 81:9 84:24 86:1 91:7 93:2	94:2 101:1
<b>statement</b>	64:15 72:3 73:18 77:11	95:25 99:11 106:4 107:21	<b>telling</b>
30:5 47:18 61:14 78:8 84:7 110:7,10 111:9 116:13	82:5,15 85:12 90:11 96:25	118:24	20:22 21:3,13 56:14
<b>statements</b>	98:2 101:10 104:11 105:7	<b>survey</b>	<b>ten</b>
114:19	105:11 108:6,7,8,18,23	106:6	50:13 60:2
<b>states</b>	109:1,7 110:1 112:21,23	<b>surviving</b>	<b>term</b>
1:1 24:22 115:18	113:4 114:17 115:11	100:11	41:3 49:15 82:3 90:12 91:11 116:3
<b>stating</b>	<b>study</b>	<b>sworn</b>	<b>terminologies</b>
15:11	14:15 20:7,25 25:20,20 27:17 31:18 32:3,9,15	123:14	78:19 81:6,22
<b>statistical</b>	34:12 35:20 38:19,25 43:5	<b>synthesized</b>	<b>terminus</b>
44:24 54:4,7,10 90:24 110:18 113:3 115:11	44:10,18,24 45:4,10,16,22	80:5	3:9
<b>statistically</b>	46:2,8,18 47:23 48:6,11	<b>systematic</b>	<b>terms</b>
28:22 30:8,24 31:8,20 32:5 44:11,19,25 45:6,11,17,23 46:4,9,16 49:14 57:5,7	49:12,17 51:13,17,17,23	29:15 80:1,9 85:19	106:19
<b>stayed</b>	52:2,3,8,10,16 53:2,16,18	<b>systematically</b>	<b>testified</b>
74:25	55:18,21 56:3,19,20 60:23	72:7	70:1,3 71:20 72:8 74:18 88:5 94:14,22
<b>stenotype</b>	60:24 72:10,15,24 88:20	<b>systemic</b>	<b>testifying</b>
120:4	93:11,24 94:3,4,7,10 95:13	62:25 63:1,3,9	17:4 74:11 94:20
<b>stephen</b>	95:13 97:4,5 99:17,23	<b>systems</b>	<b>testimony</b>
3:3	101:3 102:15 103:19,23	98:12,12	12:16 16:18 17:1 20:19 63:15 70:8 84:7 85:5 88:14
<b>steve</b>	105:5,19,23 106:2	<b>t</b>	94:17 101:17 121:9,18 123:8
63:25 76:7 107:1	<b>studying</b>	<b>table</b>	<b>testing</b>
<b>steven</b>	43:24 102:15	8:1 88:4,18,21 91:23 92:1,4 92:6,7	19:20
3:8 116:25 117:10	<b>sub</b>	<b>tablet</b>	<b>teva</b>
<b>stick</b>	99:18 100:2,13,14,19 101:8	98:14	3:6,11 4:16 64:1
87:7	<b>subject</b>	<b>tablets</b>	<b>thank</b>
<b>stipulations</b>	61:20 63:6 71:19 81:18,20	64:6	49:3 63:18,20 71:16 76:12 80:16,25 89:13 92:14 96:3
7:8	<b>subjects</b>	<b>tag</b>	97:7 101:4 107:11,19 109:10 110:8 116:16,19,22 118:6,9,11,13,15,16
<b>stomach</b>	33:21	<b>tagged</b>	<b>therapeutics</b>
45:1 50:4,20 54:17 55:20 92:15	<b>submit</b>	81:8,22,24	66:14 68:15
<b>stop</b>	76:25	<b>taken</b>	<b>thereof</b>
85:24	<b>subscribed</b>	1:13 33:22 60:6 61:19	120:12
<b>storms</b>	123:14	76:19 87:24 93:6 117:7	<b>thing</b>
117:20	<b>substance</b>	120:6	36:24
<b>straightforward</b>	97:10	<b>talk</b>	<b>things</b>
9:24	<b>substantial</b>	58:7 112:11,13	14:19,20,21 20:18 51:10
<b>strategy</b>	28:21	<b>talked</b>	<b>think</b>
77:12 85:13	<b>sufficient</b>	16:1 36:25 37:23 40:9	10:14,17 12:10 13:3,16 15:21 16:11,22 17:2 18:24
<b>street</b>	47:24 49:8	48:17 51:4,5 60:13 88:24	19:6 21:18 22:5 28:12 30:4 33:15 34:4,4,21,22,22 35:7
2:5 3:4,20 4:4,9,14,19 5:5	<b>suggest</b>	101:13,14	35:7 36:16,25 40:8 51:10 57:7,16 59:20,20 65:10,14
<b>strengths</b>	11:9 12:3,17 18:18 19:20	<b>talking</b>	70:16 75:15 89:11,13 91:17 93:14 94:25 95:7,11 96:8
91:13,17	22:21 33:10 37:12	14:14 17:18 33:2 60:17	100:24 108:18,24 109:13
<b>strike</b>	<b>suggesting</b>	88:4 91:4 102:12 113:2	110:11 111:10 114:18 115:3,12 116:18 117:15,24
27:2 73:22 92:17 110:14 113:16	11:18 18:9 36:24 40:24	114:15	118:12 119:2,11
<b>stringent</b>	41:3	<b>teach</b>	<b>thornburg</b>
70:15	<b>suggests</b>	69:1	4:8
<b>studied</b>	13:18	<b>teaching</b>	
43:16 99:5	<b>suite</b>	68:24	
<b>studies</b>	2:10,15,21 3:4,9 4:19 5:5	<b>technical</b>	
11:8,18,21 12:2 18:16,18 19:19 20:15,20 32:10 33:10 33:20 34:7,25 35:12 36:12 36:19 37:21 39:14 42:15,19	<b>summarize</b>	53:13 54:6 113:19 115:4	
	<b>support</b>	<b>techniques</b>	
	49:13	110:19	
	<b>supports</b>	<b>tell</b>	
	41:12	21:22 23:12 35:19,24 37:10	
	<b>sure</b>	50:17 51:19 52:13 59:14	
	13:24 48:3,5 49:2 53:17		

**[thorough - volume]**

<b>thorough</b> 80:8 85:18	<b>toxicologist</b> 96:15	<b>types</b> 50:16,23 53:14 57:1,10 80:2,3,9 85:3 94:9 109:7	<b>uterine</b> 57:3 58:22
<b>thought</b> 57:15 92:18	<b>toxicology</b> 98:25 108:7		<b>v</b>
<b>three</b> 4:14 51:18 52:4 60:23 61:4 112:8 113:16	<b>track</b> 69:13	<b>u</b>	
<b>threshold</b> 38:6,7,13,16,17,20 114:4 114:25 115:3	<b>trade</b> 4:19	<b>u.s.</b> 1:5 2:18,18 28:3	
<b>time</b> 9:1,8,8 13:16,16 17:15,22 26:1,23 29:14 30:18 31:5 31:14 37:14 43:9 47:24 51:22 52:11,16 54:11,12,12 56:15 60:3,7,15,16 61:18 62:1 73:7 76:17,22 84:18 84:25 85:2 87:22,25 93:3,7 93:15 95:8 101:9 114:13 116:18,20 117:5,8 118:10 118:12,13,14 120:6 121:19	<b>training</b> 67:3 68:4 96:18	<b>ubc</b> 68:19 70:11,19,22 77:17	
<b>timeframe</b> 121:8	<b>transcript</b> 118:23 119:19 121:6,20 123:5,8	<b>ubiquitous</b> 10:1 40:10	
<b>times</b> 53:21 54:15 103:8	<b>transcription</b> 120:7	<b>umbrella</b> 82:3 115:6	
<b>timing</b> 72:17 117:16	<b>transferred</b> 67:19	<b>unaware</b> 97:9	
<b>tissue</b> 98:12	<b>traurig</b> 3:3,8 63:25 119:5	<b>uncovered</b> 34:13	
<b>title</b> 67:1,18,20,21,23 83:25	<b>trial</b> 104:16,25 105:4	<b>understand</b> 14:18 22:20 28:12 31:8 41:10 58:13 59:9 69:15 81:3,10 96:4 105:14,16 106:6 112:1 113:1	
<b>today</b> 12:16 24:9 32:16 117:21	<b>tried</b> 86:9	<b>understanding</b> 110:19,25 114:25	
<b>today's</b> 118:15	<b>trischler</b> 3:19 8:5 9:12,16 10:4,9 11:16 12:1,12 13:2,9 14:17 15:2,8 16:22 17:2,7 18:23 20:9 21:11,20 22:8 24:7 25:11,12 27:1,3,10 28:11 29:17 30:20 31:15,25 32:14 33:1 34:9,19 35:15 36:3,22 37:22 38:12,21 40:7,22 41:8,17 42:2 44:6 48:8,16 49:2 50:7,14 51:3 52:21 53:8 54:23 55:6,23 56:24 58:25 59:5,11,19 119:10,10	<b>understood</b> 18:7 29:18	
<b>told</b> 20:24 22:2 30:11 52:9,22	<b>trouble</b> 9:19 107:15	<b>undertaking</b> 14:15	
<b>tool</b> 89:9	<b>true</b> 10:6,21 27:18 37:25 39:6 47:8,20 66:2 88:23 104:10 105:3,4 110:12 120:7 123:8	<b>undertook</b> 15:17	
<b>tools</b> 113:18 115:13	<b>try</b> 15:17 18:1 27:4 34:11 86:23 106:4	<b>undoubtedly</b> 21:7,8	
<b>top</b> 23:10 65:18 79:15 111:22	<b>trying</b> 14:19 26:14 28:1,9 37:3 97:24 108:13 115:22	<b>unit</b> 60:4,8 93:4,8	
<b>topic</b> 54:22 57:22 75:17 88:25 105:8	<b>turn</b> 9:10	<b>united</b> 1:1 24:22	
<b>topics</b> 75:20,23 114:20	<b>type</b> 29:9,25 37:19 63:1 80:10 112:12,13,14 114:17,17 116:10	<b>university</b> 69:8 70:2,21 71:2	
<b>toronto</b> 71:2		<b>unmeasured</b> 88:6,16,19,24 90:1,21 91:21 92:2,11,16	
<b>total</b> 19:21 27:11		<b>unquote</b> 78:6 97:17	
<b>tower</b> 4:19		<b>updated</b> 65:20	
<b>toxicologic</b> 97:2		<b>upload</b> 76:11 111:17	
<b>toxicological</b> 97:3 109:1		<b>upper</b> 23:16	
		<b>ups</b> 61:10	
		<b>use</b> 21:24 22:3 83:21 91:15 94:8,9	
		<b>useful</b> 72:11	
		<b>usually</b> 50:12 66:8 102:21 108:16	

[waiting - zoom]

w	x
<b>wise</b> 26:10	<b>xi01658</b> 120:16
<b>wishes</b> 118:7	<b>y</b>
<b>withdraw</b> 94:12	<b>yeah</b> 13:20 24:1 59:11 60:1 105:2
<b>withdrew</b> 74:3,6	<b>year</b> 33:8 60:25 69:2 70:23 74:19
<b>witness</b> 10:3,8 11:13 12:7,21 13:8 14:14 15:1,7 17:6 18:22 19:16 20:6 21:18 24:5 25:19 27:9,14 29:7 30:15 31:4,23 32:8,24 33:15 34:21 36:10 37:17 38:10 40:5,19 41:7,16 42:1 48:2 48:15 50:11 51:2 53:6 54:20 55:4,12 56:2,18 58:24 59:1,9,15,21,24 60:19 61:7,23 63:11,17,19 63:20 64:10 68:13 72:13 73:2 76:13 77:8,25 78:24 81:17 85:10,17 87:3 88:23 89:19,23 90:19 96:23 98:8 98:24 99:9,15 103:25 104:8 104:21 105:2,16 106:10 107:4,10,14 108:12 111:4 111:19 112:4 114:10 115:3 115:25 116:22 120:6,13 121:8,10,12,19	
<b>wanted</b> 21:6 55:15,16 70:13 71:22 85:18 96:1 115:14	<b>yesterday</b> 15:9 18:17 19:8 20:14,19 29:8 51:6 52:9,22 63:24 65:5,10 70:1,10 71:20 74:5 75:6 84:4,7 88:3,25 90:11 94:14 95:12 97:5 101:13 103:9 117:21
<b>warned</b> 103:14	<b>york</b> 2:10
<b>warrants</b> 108:25	<b>z</b>
<b>washington</b> 2:10 3:4	<b>zhejiant</b> 2:18
<b>water</b> 10:11,16	<b>zheng</b> 46:18,21 47:3,21 48:11
<b>weather</b> 117:25	<b>zmick</b> 5:4
<b>wednesday</b> 1:13	<b>zoom</b> 1:12 2:1 3:1 4:2 5:2
<b>week</b> 117:15	
<b>weibull</b> 53:21,24 54:3,14	
<b>weighted</b> 77:9	
<b>went</b> 50:22 80:12 83:24 86:2	
<b>werner</b> 2:20	
<b>west</b> 4:19 5:5	
<b>we've</b> 33:2 40:8,9 96:8	
<b>whereof</b> 120:13	
<b>whichever</b> 86:3	
<b>wide</b> 101:16,19	
<b>widely</b> 89:12 91:19	
<b>width</b> 102:1,4	
<b>willing</b> 61:16	